

**ANNUAL UPDATE REPORT: 2005**

**Former Alliance Fast Food Mart II  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032**

**Report Prepared for:**

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**February 1, 2006**

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- Appendix C: Historical Groundwater Monitoring Data
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## **1.0 INTRODUCTION**

### **1.1 General**

This Annual Update Report summarizes the results of investigative and corrective activities performed by Bergeson-Boese & Associates, Inc. (BB&A) at the former Alliance Fast Mart II located at 1070 Highway 101 North in Crescent City, California, during 2005 and includes the sampling results of quarterly monitoring activities performed during the fourth quarter (i.e., October, November, December) 2005. The location of the site is identified on the Site Location Map presented as Figure 1.

Site activities were performed in accordance with Monitoring and Reporting Program (MARP) No. R1-2005-0054 established for the site by the North Coast Regional Water Quality Control Board (RWQCB) dated June 2, 2005. A copy of the MARP is presented in Appendix A.

### **1.2 Mechanical Remediation Activities**

On December 15, 2004, BB&A installed two (2) in-situ chemical oxidation (ISCO) remediation systems. One system, located on the subject property, consists of three (3) vertically installed sparge points (i.e., SP-1, SP-2, and SP-3) and five (5) horizontal sparge points (i.e., HSP-4 through HSP-8) installed in angled borings beneath the Highway 101 North roadway. The off-site ISCO remediation system is installed at the Shooters Billiards property located at 1091 Highway 101 North across the highway from the subject property. This system includes eight (8) vertically installed sparge points (i.e., SP-9 through SP-16). Locations of the sparge points are identified on Figure 2.

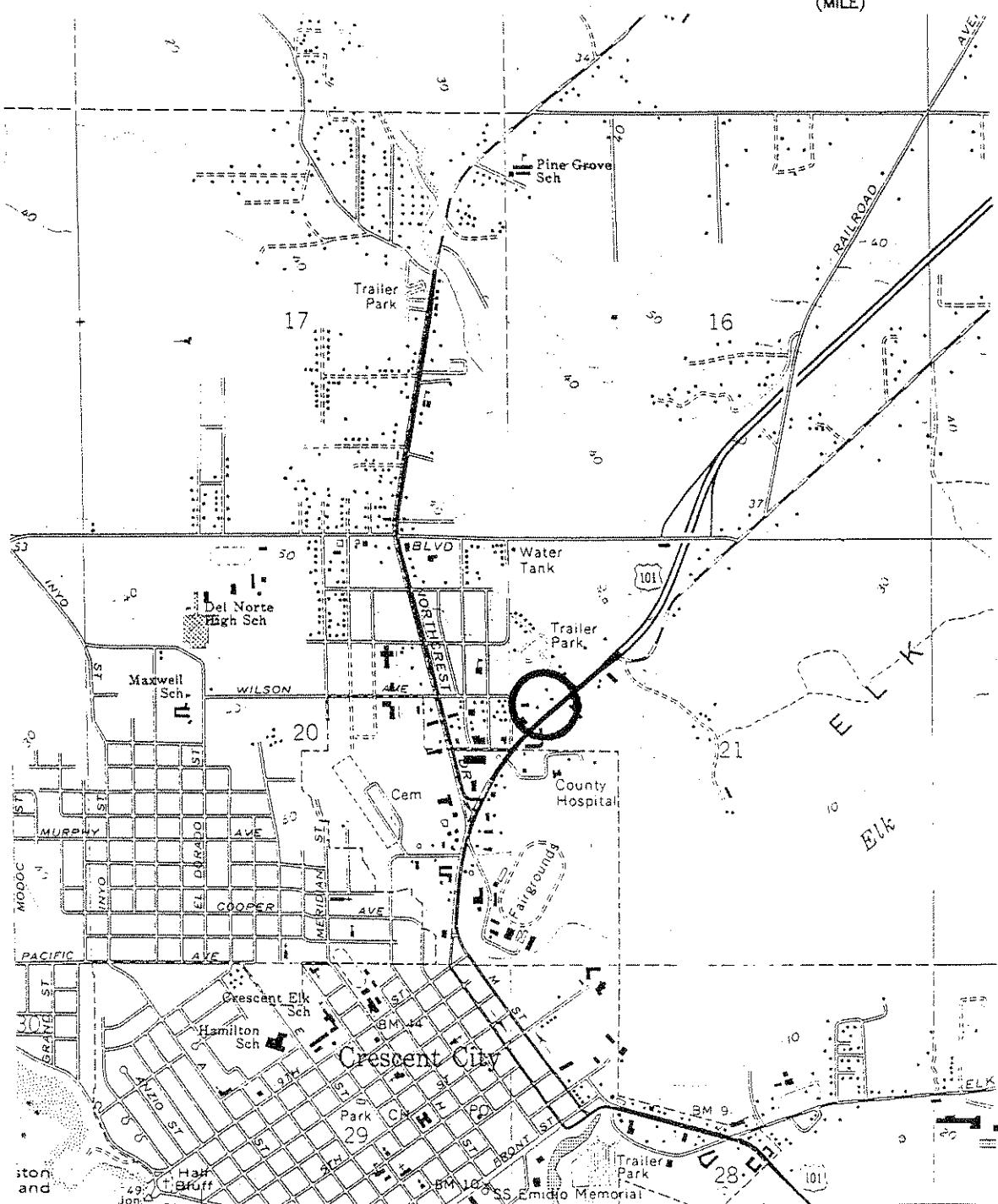
Each remediation system consists of an oxygen concentrator, a 10-channel ozone generator, and a programmable timer which administers gaseous ozone under pressure to each sparge point. Equipment is housed in a locked and ventilated enclosure. Each system performs a 90 minute programmable cycle which is repeated 16 times daily. Under the current schedule, each of the eight (8) sparge points is operated for 10 minutes during each cycle followed by a 10 minute rest period to allow the compressor to cool. Output from the compressor is approximately three (3) cubic feet per minute (cfm). The mass of ozone delivered by each ISCO remediation system is approximately five (5) grams per hour. In addition, each ISCO remediation system delivers approximately 84 grams of oxygen to each well per hour.

The presence of ozone facilitates conversion of petroleum hydrocarbons into simpler compounds through direct chemical oxidation. Elevated concentrations of dissolved oxygen (DO) promote respiration of aerobic hydrocarbon-degrading bacteria. BB&A conducts monthly operation and maintenance (O&M) inspections of the ISCO remediation system. During each site visit, the mechanical systems are inspected and operating parameters (e.g., sparging pressures, elapsed operation, groundwater parameters, etc.) are recorded.

In August 2005, BB&A installed an electrical upgrade to the two (2) systems to allow the systems to automatically restart in the event of a power failure.

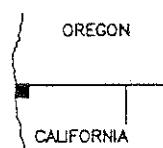
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1/4 1 (MILE)



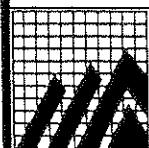
○ SITE LOCATION

FIGURE 1



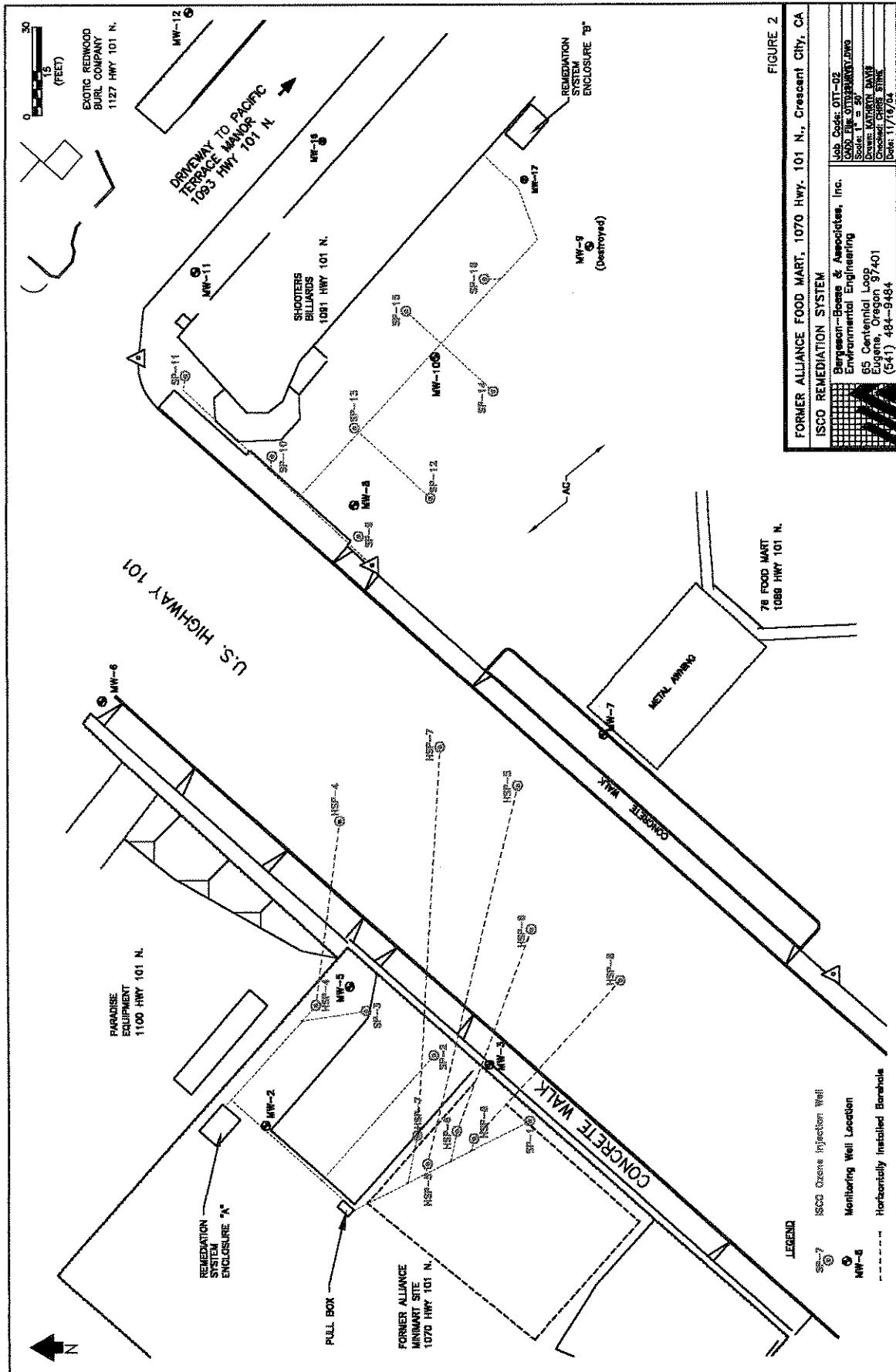
FORMER ALLIANCE FOOD MART, 1070 HWY. 101 N, Crescent City, CA

SITE LOCATION MAP



Bergeson-Boese & Associates, Inc.  
Environmental Engineering  
32986 Roberts Court  
Coburg, Oregon 97408  
(541) 484-9484

Job Code: OTTO2
CADD File: OTTO2.DWG
Scale: AS SHOWN
Drawn: KATHRYN DAVIS
Checked: CHRIS STINE
Date: 11/16/04



## **2.0 GROUNDWATER MONITORING**

### **2.1 Groundwater Gradient and Flow Direction**

BB&A performed quarterly groundwater monitoring activities at the site on December 7, 2005. Groundwater monitoring data collected during the December 2005 monitoring event are presented in Table 1. The area surrounding monitoring well MW-13 was under several inches of accumulated stormwater. This well was not monitored or sampled. A groundwater elevation contour map illustrating the direction of local groundwater movement is presented as Figure 3. Historical groundwater monitoring data are presented in Appendix B.

Local groundwater movement during the September 2005 monitoring event was towards the northeast at a gradient of approximately 0.0080. The elevation of the groundwater surface ranged from 20.47 feet above mean sea level (ASL) in monitoring well MW-15 to 24.04 feet ASL in monitoring well MW-2. These measurements are consistent with seasonal elevation data recorded during previous fourth-quarter monitoring intervals.

**Table 1. Water Table Elevation Measurements: December 7, 2005**

Monitoring Well ID	Wellhead Elevation	Depth to Water	Water Table Elevation
MW-2	31.27	7.23	24.04
MW-3	30.23	6.78	23.45
MW-5	29.90	7.10	22.80
MW-6	29.51	7.38	22.13
MW-7	30.71	8.02	22.69
MW-8	29.42	7.34	22.08
MW-10	29.47	7.83	21.64
MW-11	29.87	8.52	21.35
MW-12	28.36	7.33	21.03
MW-13	26.67	Wellhead under water	
MW-14	26.26	4.76	21.50
MW-15	26.92	6.45	20.47
MW-16	29.80	8.50	21.30
MW-17	29.80	7.99	21.81
RW-1	27.86	7.19	20.67
		Maximum	24.04
		Minimum	20.47
		Mean	21.93

All measurements in feet  
Elevations based on Oscar Larson Associates survey February 5, 2003

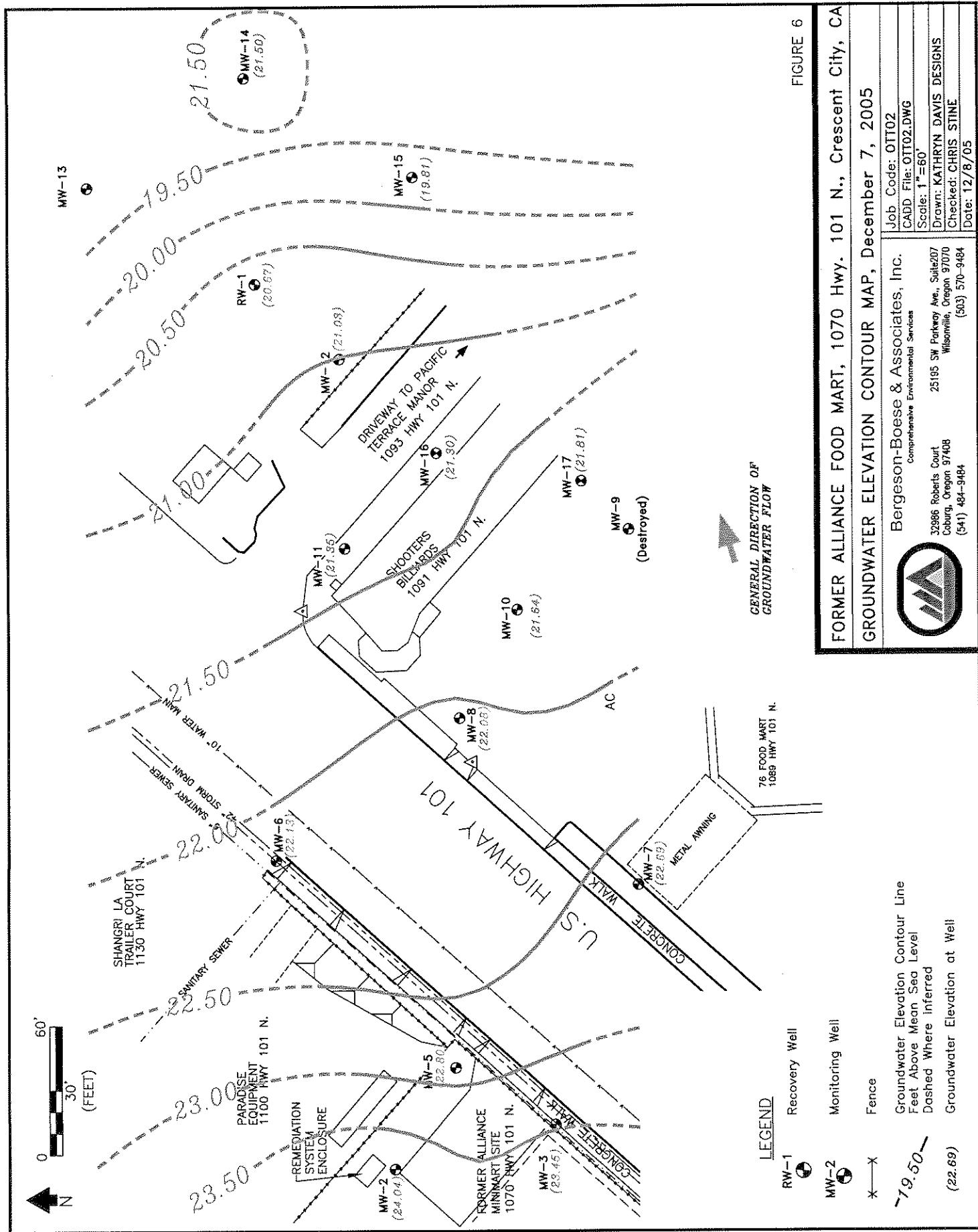


FIGURE 6

## **2.2 Groundwater Monitoring Parameters**

BB&A measured the following groundwater parameters at each well during each O&M and/or sampling event: depth to water, pH, DO, conductivity, total dissolved solids (TDS), temperature, turbidity, and oxidation-reduction potential (ORP). Measurements were recorded using a Horiba U-22 water meter. During O&M events, measurements were recorded by submerging the meter directly in the monitoring well casing. During sampling events, measurements were recorded periodically from purge water using a flow cell. Tabulated data from recent and historical monitoring events are presented in Appendix C. A discussion of select groundwater parameters is presented in the following sections.

### **2.2.1 Groundwater Temperature**

BB&A measured groundwater temperature at each monitoring well location to monitor changes in temperature during groundwater remediation. Chemical oxidation is an exothermic process which may contribute small amounts of thermal energy to groundwater during remediation.

Figure 3 illustrates the monthly minimum, maximum, and mean groundwater temperatures for 2005. The average monthly groundwater temperature at all monitoring wells for 2005 was 15.5 degrees Centigrade. The maximum average monthly groundwater temperature of 17.0 degrees Centigrade was recorded in September 2005. The minimum average monthly groundwater temperature of 14.1 degrees Centigrade occurred in February 2005.

The mean groundwater temperature during December 2005 was 16.0 degrees Centigrade which compares with 15.9 degrees Centigrade in December 2004 immediately prior to groundwater remediation. Year-to-year temperature measurements do not indicate significant groundwater warming due to chemical oxidation activities.

### Groundwater Temperature

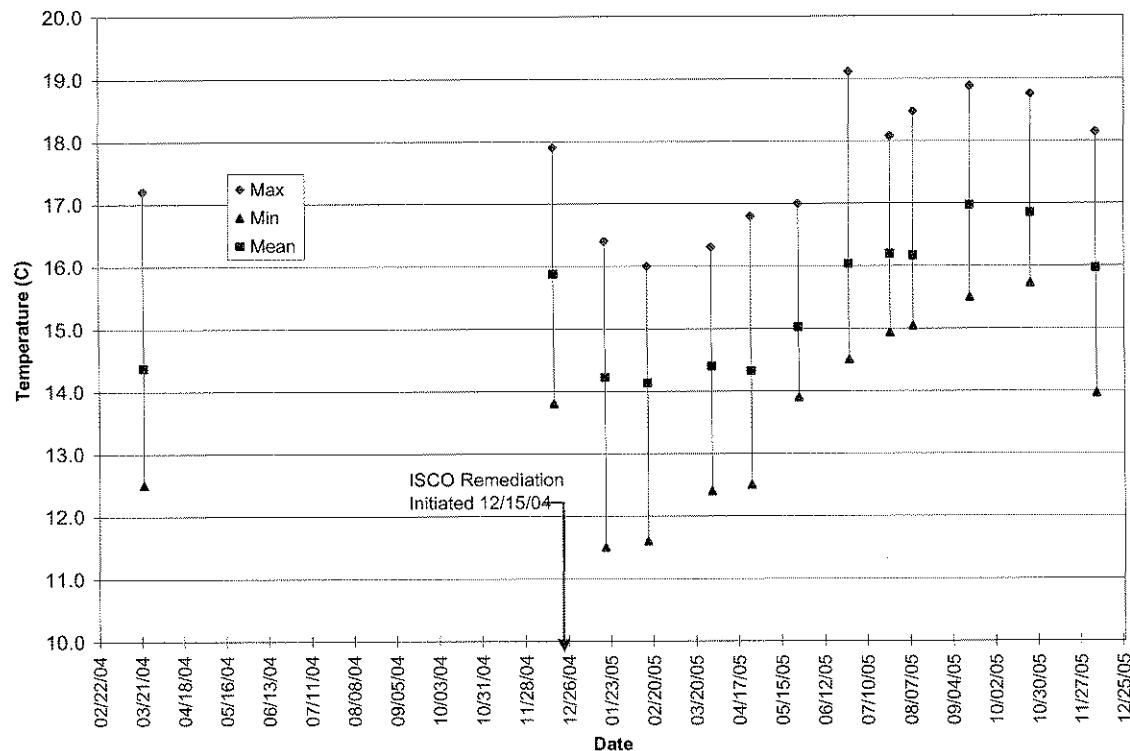


Figure 3 - Groundwater Temperature

#### 2.2.2 Oxidation-Reduction Potential and Dissolved Oxygen

ORP is a relative measure of the potential for water to oxidize or reduce other substances. The introduction of ozone at multiple sparge point locations increases the oxidative potential within the plume. The dispersion of ozone in groundwater, therefore, may be inferred from ORP measurements recorded at existing groundwater monitoring wells.

During the December 2005 sampling event, ORP measurements ranged from -76 mV (MW-14) to 203 mV (MW-3). In December 2005, the average ORP measurement inside the remediation zone (i.e., monitoring wells MW-2, MW-3, MW-5 through MW-8, and MW-10) was 139 mV. The average ORP measurement outside the remediation zone (i.e., all other wells) was 62 mV. The elevated ORP levels within the primary remediation zone confirm an increase in the oxidative potential of groundwater across a broad portion of the contaminant plume.

Ozone decomposes rapidly into oxygen. Elevated levels of DO stimulate biological activity which benefit the natural attenuation process. Overall, concentrations of DO in December 2005 ranged from 0.0 mg/L to 7.4 mg/L (MW-8). The average concentrations of DO inside and outside the remediation zone were 4.90 mg/L and 0.08 mg/L, respectively.

Figure 4 presents recent ORP and DO measurements in monitoring well MW-8 located near the center of the contaminant plume core. DO and ORP levels fluctuated greatly following startup of the ISCO remediation system. Since August 2005, DO concentrations have ranged between 6.0 mg/L and 8.0 mg/L. The current DO and ORP levels in this well are significantly above respective background levels and are consistent with conditions which promote biological degradation and chemical oxidation of groundwater contaminants. It is anticipated that ORP and DO levels in monitoring well MW-8 may continue to rise as the concentration of target contaminants decreases.

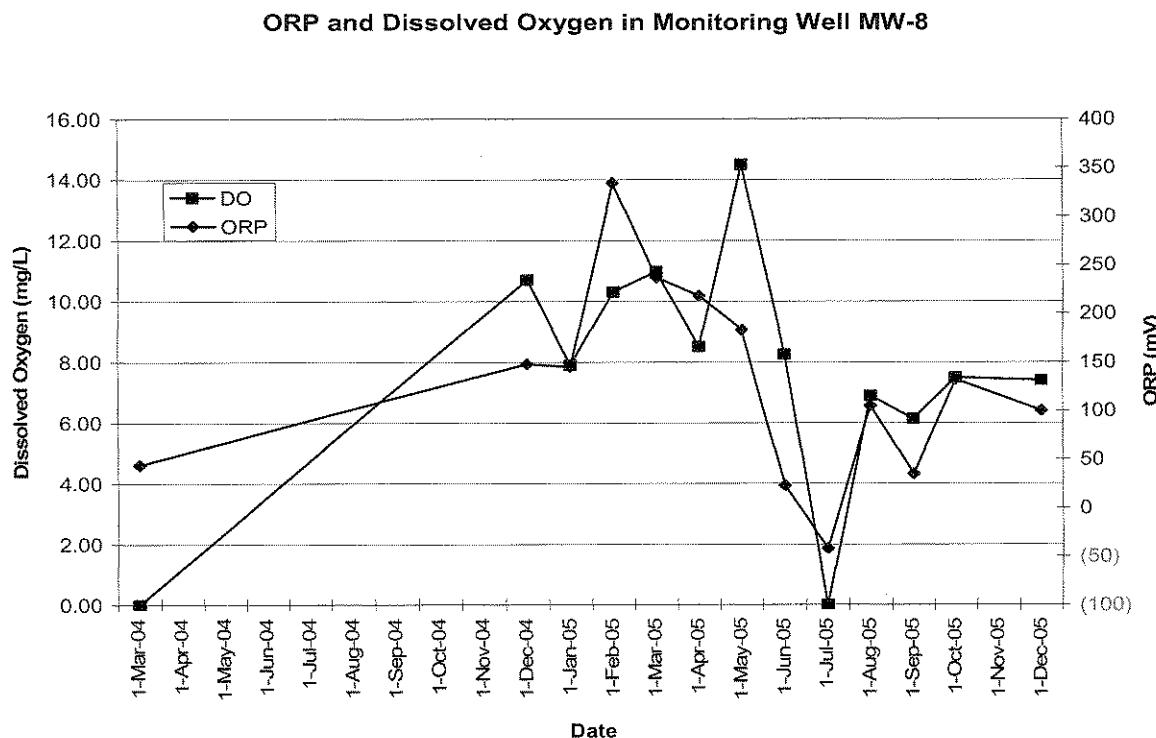


Figure 4 - ORP and DO in Monitoring Well MW-10

### 2.2.3 Groundwater pH

BB&A monitors groundwater to evaluate changes in pH due to the introduction of ozone and oxygen. Figure 5 illustrates the high, low, and mean groundwater pH measurements recorded at the site during the past several monitoring events. During the December 2005 sampling event, groundwater pH ranged from 5.53 (RW-1) to 7.25 (MW-8) standard units (SU). pH levels are generally consistent with pre-remediation levels recorded in March 2004.

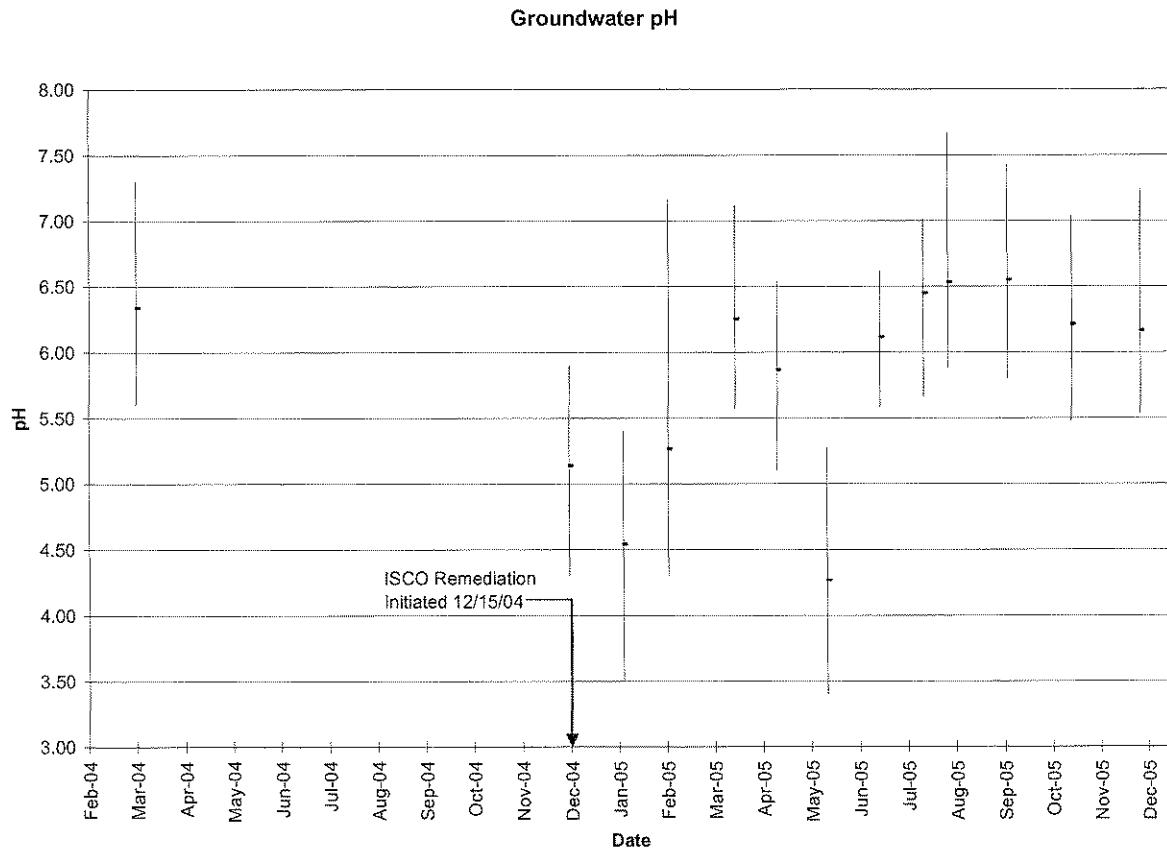


Figure 5 - Groundwater pH

### **2.3      Groundwater Sample Collection and Analysis**

On December 7, 2005, BB&A performed fourth quarter sampling activities in accordance with the monitoring schedule presented in MARP No. R1-2005-0054 dated June 2, 2005. A summary of the sampling schedule is presented in Table 2.

Groundwater samples from Group A and B wells were analyzed for the parameters identified in Table 2 using the following analytical methods:

- TPHg using Environmental Protection Agency (EPA) Method 8015CB
- Benzene, toluene, ethylbenzene, xylene (BTEX) using EPA Method 8021B
- Total molybdenum, selenium, and vanadium using EPA Method 6010
- Total hexavalent chromium using EPA Method 7196A
- Bromide using EPA Method 300.0
- Bromate ( $\text{BrO}_3$ ) using Method 300.1

**Table 2. MARP Monitoring Schedule**

Parameter	Group A Wells				Group B Wells			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
GW Monitoring	•	•	•	•	•	•	•	•
TPH and BTEX	•	•	•	•		•		•
Field Parameters	•	•	•	•	•	•	•	•
Oxidation Parameters	•	•	•	•				

Group A Wells: MW-3, MW-5, MW-6, MW-7, MW-8, MW-10, MW-11, MW-15, MW-16, & MW-17  
Group B Wells: MW-2, MW-12, MW-13, MW-14, & RW-1

GW Monitoring: Depth to groundwater measurements to 0.01 foot.  
TPH per EPA 8015C; BTEX per EPA 8021B  
Field Parameters: pH, dissolved oxygen, temperature, conductivity, oxidation/reduction potential.  
Oxidation Parameters: Dissolved hexavalent chromium, selenium, vanadium, and molybdenum, bromide, and bromate.

The laboratory results are presented in Table 3 and 4. A copy of the laboratory report and chain-of-custody record is presented in Appendix D. A summary of historical groundwater monitoring data collected since 1992 is provided in Appendix C. Table 3 also presents the strictest water quality objectives and the Monitored Natural Attenuation (MNA) baseline objectives for each contaminant. The MNA baseline objectives are determined from previously calculated site-specific natural attenuation rates and represent the maximum contaminant concentration which will reach the water quality objective through natural attenuation in a period of five (5) years.

**Table 3. Groundwater Sampling Results: December 7, 2005**

Well ID	TPHg	Benzene	Toluene	Ethylbenzene	Xylene
MW-2	<50	<0.50	<0.50	<0.50	<0.50
MW-3	<b>60</b>	<0.50	<0.50	<0.50	<0.50
MW-5	<50	<0.50	<0.50	<0.50	<0.50
MW-6	<50	<0.50	<0.50	<0.50	<0.50
MW-7	<b>89</b>	1.0	<0.50	<0.50	<0.50
MW-8	<50	<0.50	<0.50	<0.50	<0.50
MW-10	<b>170</b>	<b>3.1</b>	0.92	6.9	3.1
MW-11	<b>81</b>	<b>1.3</b>	<0.50	<0.50	<0.50
MW-12	<50	<0.50	<0.50	<0.50	<0.50
MW-13		<i>No sample collected</i>			
MW-14	<50	<0.50	<0.50	<0.50	<0.50
MW-15	<b>200</b>	<b>6.3</b>	0.56	<0.50	0.74
MW-16	<b>210</b>	<b>5.7</b>	1.0	0.54	<0.50
MW-17	<b>2,000</b>	<b>12</b>	2.0	0.5	6.4
RW-1	<50	<0.50	<0.50	<0.50	<0.50
MNA Baseline Objective	430	8.6	360	250	150
Water Quality Objective	50	1.0	42	29	17
Units: TPHg and BTEX in $\mu\text{g}/\text{L}$ (ppb)					
< Values are less than the indicated laboratory method reporting limit (MRL)					
Values in bold typeface exceed strictest RWQCB water quality objective					
Values in bold italic typeface exceed MNA baseline objective					
Sequoia Analytical laboratory report number S512232 dated January 4, 2006					

**Table 4. Groundwater Sampling Results: December 7, 2005**

Well ID	Molybdenum	Selenium	Vanadium	Hexavalent Chromium	Bromide	Bromate
MW-2						
MW-3	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-5	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-6	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-7	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-8	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-10	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-11	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-12						
MW-13						
MW-14						
MW-15	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-16	<0.020	<0.10	<0.020	<0.0050	<1.0	<0.005
MW-17	<0.020	<0.10	<0.020	0.050	<1.0	<0.005
RW-1						

Units: All units in mg/L  
 < Values are less than the indicated laboratory method reporting limit (MRL)  
 Not analyzed where blank  
 Sequoia Analytical laboratory report number S512232 dated January 4, 2006

## 2.4 Interpretation of Results

### **2.4.1 TPHg and BTEX**

BTEX and TPHg sampling results from the fourth quarter 2005 are summarized below:

- Concentrations of dissolved toluene, ethylbenzene, and xylene are below their respective water quality objectives in all sampled monitoring wells;
- The concentration of dissolved benzene in monitoring well MW-17 (12 µg/L) exceeds the MNA Baseline Objective for benzene of 8.6 µg/L.
- Concentrations of dissolved benzene in monitoring wells MW-10, MW-11, MW-15 and MW-16 range up to 6.3 µg/L and are above the water quality objective for benzene of 1.0 µg/L but below the MNA Baseline Objective for benzene of 8.6 µg/L.
- Concentrations of dissolved benzene in all other sampled wells are at or below the water quality objective of 1.0 µg/L.
- The concentration of dissolved TPHg in monitoring well MW-17 (2,000 µg/L) exceeds the MNA Baseline Objective for TPHg of 430 µg/L.
- Concentrations of dissolved TPHg in monitoring wells MW-3, MW-7, MW-10, MW-11, MW-15 and MW-16 range up to 210 µg/L and are above the water quality objective for TPHg of 50 µg/L but below the MNA Baseline Objective for TPHg of 430 µg/L.
- Concentrations of dissolved TPHg in all other sampled wells are below the laboratory method reporting limit (MRL) of 50 µg/L.

Historical concentrations of dissolved TPHg and benzene in monitoring wells MW-3, MW-8, and MW-10 are illustrated graphically in Figures 6 and 7, respectively.<sup>1</sup> The graphs confirm a strong seasonal relationship with maximum contaminant concentrations occurring during the third quarter of each year. The graphs also confirm sharply lower contaminant concentrations in plume core monitoring wells after remediation activities were initiated in December 2004. Sharply lower contaminant concentrations coupled with the absence of contaminant rebound indicate remedial activities have significantly reduced groundwater impact within the plume core.

To further illustrate the reduction of dissolved contaminants in the plume core, Table 5 compares concentrations of dissolved TPHg and benzene from the current sampling event with sampling data from the previous year. Relative to data collected during the fourth quarter 2004, concentrations of dissolved TPHg and benzene in monitoring wells MW-3, MW-8, and MW-10 have decreased by more than 96 percent.

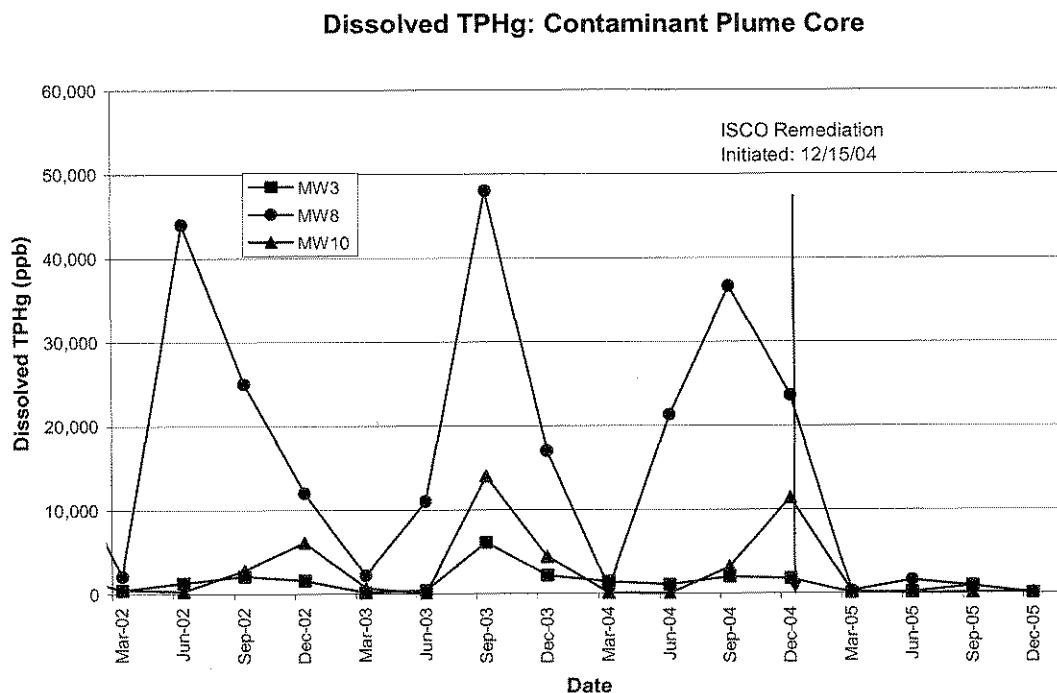


Figure 6 – Dissolved TPHg in Contaminant Plume Core: 2002 to Present

<sup>1</sup> For clarity of scale, the graphs present historical monitoring data from March 2002 through the present.

### Dissolved Benzene: Contaminant Plume Core

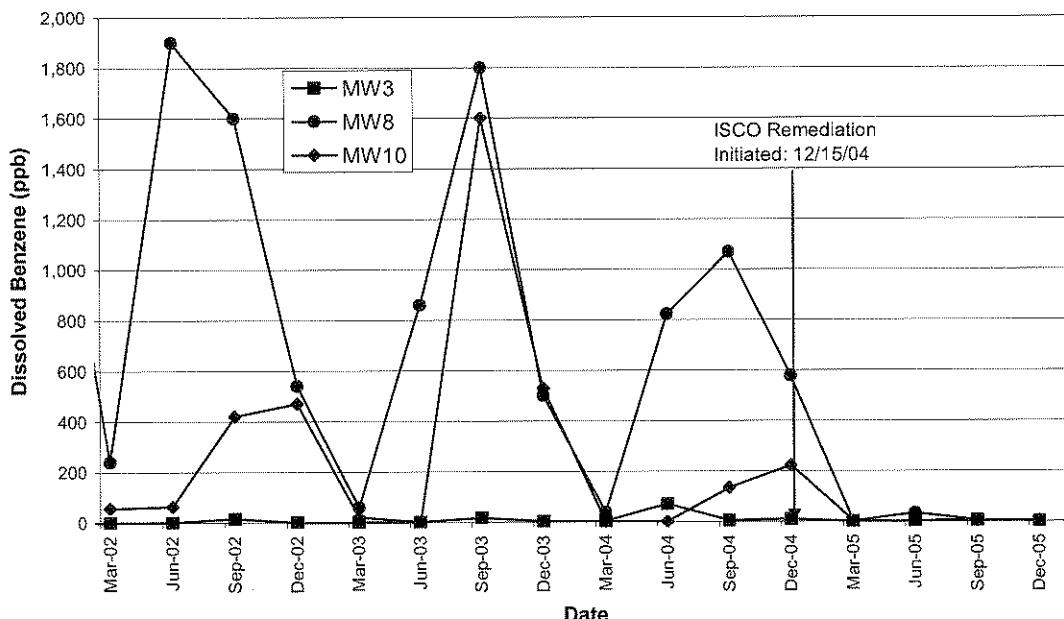


Figure 7 – Dissolved Benzene in Contaminant Plume Core: 2002 to Present

**Table 5. TPHg and Benzene in Plume Core Monitoring Wells**

Dissolved TPHg			
Well ID	07-Dec-05	16-Dec-04	Change
MW-3	60	1,790	-96.6%
MW-8	<50	23,600	-100.0%
MW-10	170.0	11,400	-98.5%
Dissolved Benzene			
Well ID	07-Dec-05	16-Dec-04	Change
MW-3	<0.50	9.7	-100.0%
MW-8	<0.50	578	-100.0%
MW-10	3.1	222	-98.6%

Units: TPHg and benzene in ug/L

#### 2.4.2 Total Metals

On December 7, 2005, BB&A sampled Group A monitoring wells for total molybdenum, selenium, and vanadium using EPA Method 6010 and total hexavalent chromium using EPA Method 7196A. Toxicity of these metals may increase with oxidative state. For this reason, the MARP requests monitoring of these metals at sites where chemical oxidation is used as a remedial method.

During the first three (3) sampling events of 2005, Group A monitoring wells were analyzed for dissolved molybdenum, selenium, vanadium, and hexavalent chromium. To prepare groundwater samples for dissolved metals analysis, groundwater is filtered through a 0.45 µm filter to remove suspended material including, if present, insoluble fractions of metals. Laboratory results from the first three (3) sampling events of 2005 confirm the absence of monitored dissolved metals in Group A wells. During the fourth quarter 2005, BB&A sampled for total metals. The analysis for total metals measures both dissolved and suspended fractions present in the sample. If laboratory analyses confirm the absence of total metals, it may be interpreted that the dissolved fraction of these metals are also absent. Groundwater samples collected for total metals analyses during the fourth quarter 2005 sampling event were not filtered prior to analysis.

The sampling data presented in Table 4 confirm the absence of total molybdenum, selenium, and vanadium in all Group A monitoring wells at concentrations exceeding laboratory MRLs. Based on these results, dissolved fractions of these metals are inferred to be absent at detectable levels.

Total hexavalent chromium was detected in monitoring well MW-17 at 0.050 mg/L which is below the Federal Maximum Contaminant Level (MCL) of 0.100 mg/L. Although the dissolved fraction of hexavalent chromium in this sample is not known, dissolved hexavalent chromium was not detected in this well during the previous three (3) sampling events. Total hexavalent chromium was not detected in the other sampled monitoring wells at concentrations above laboratory MRLs.

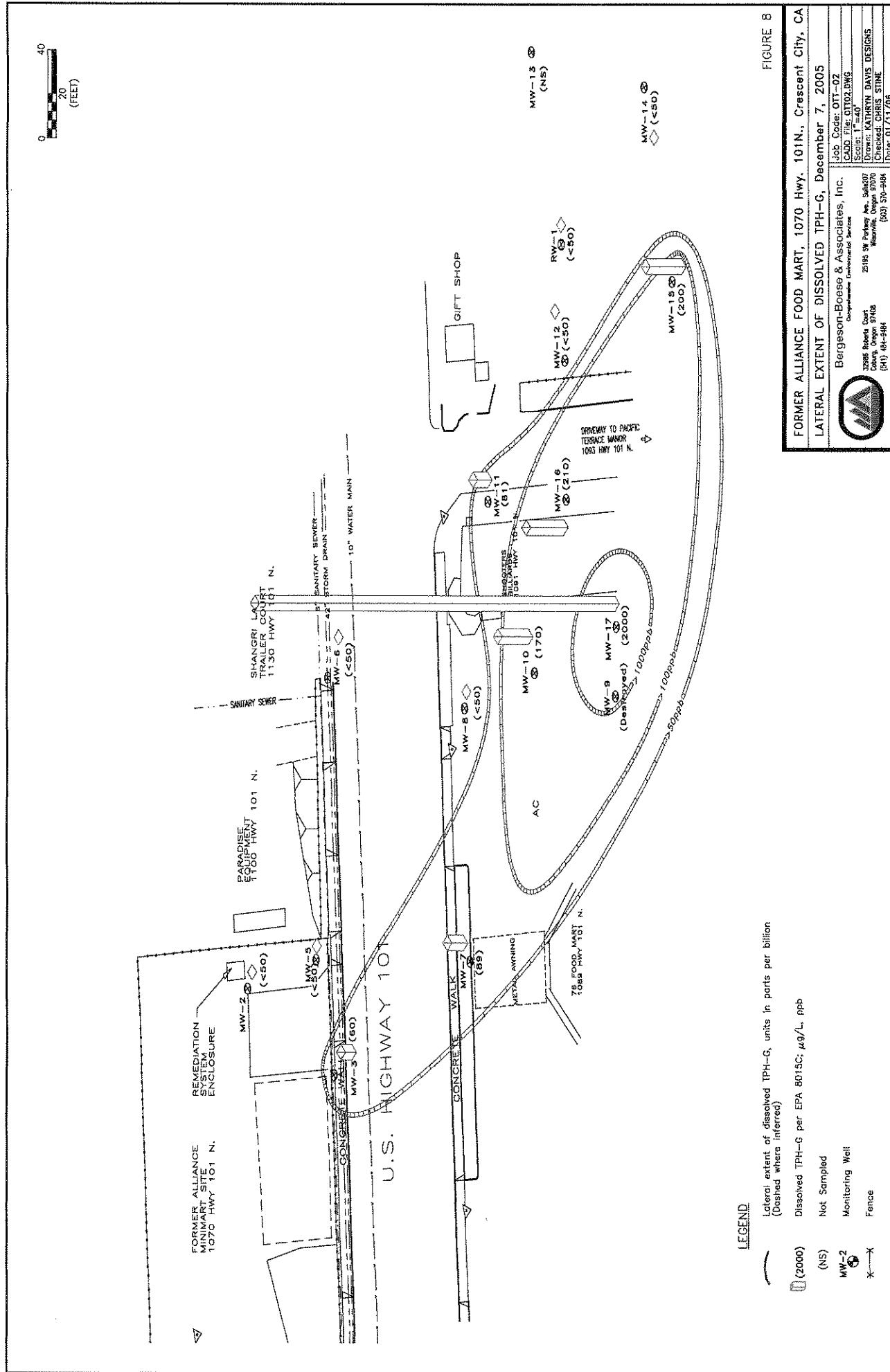
#### **2.4.3 Bromide & Bromate**

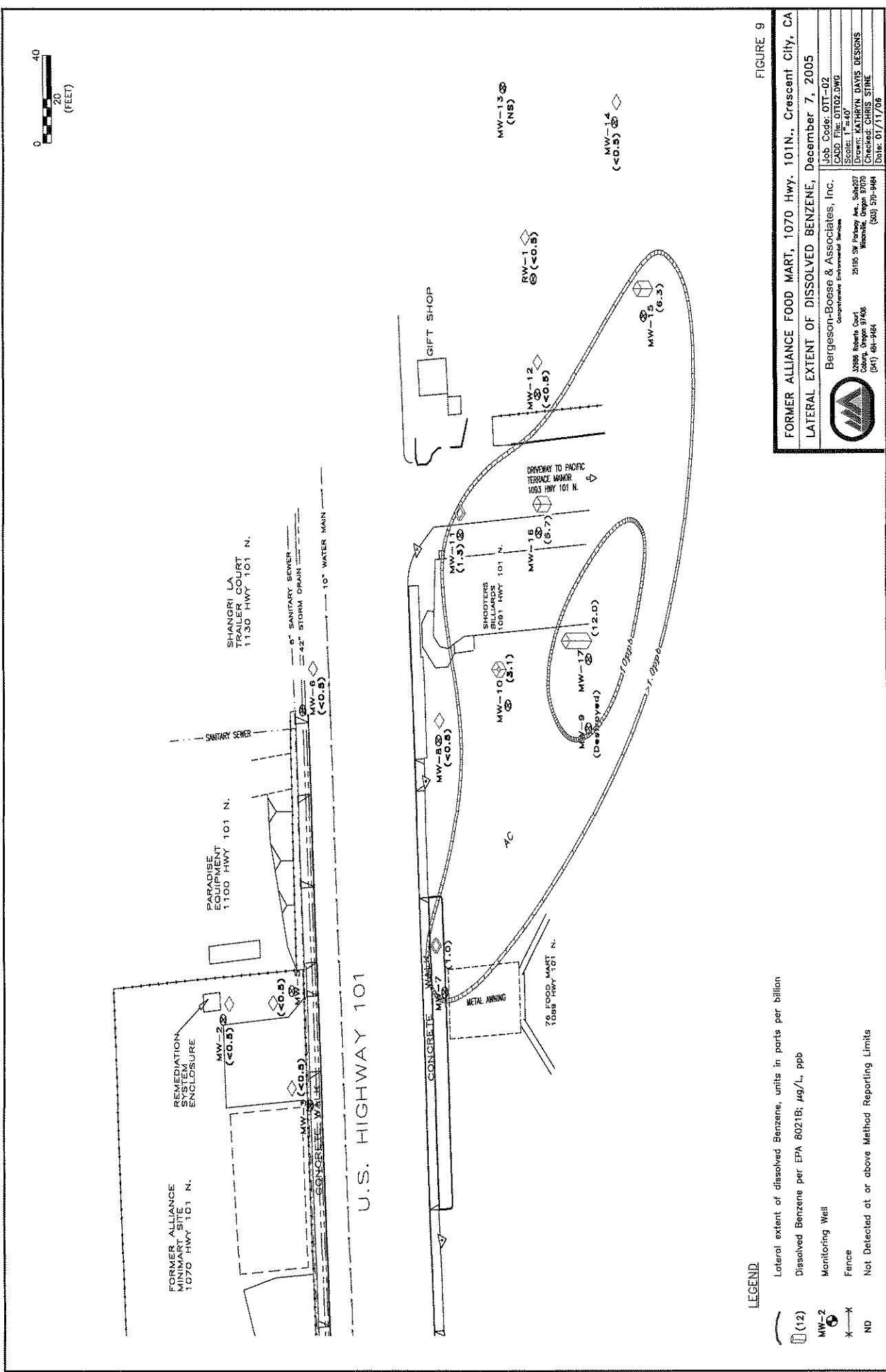
On December 7, 2005, BB&A sampled all Group A monitoring wells for bromide using EPA Method 300.0 and bromate ( $\text{BrO}_3^-$ ) using Method 300.1. The sampling data presented in Table 4 confirm the absence of these compounds at concentrations above laboratory MRLs. These results are consistent with sampling data collected during the first three (3) sampling events of 2005.

### **3.0 MAGNITUDE AND EXTENT OF GROUNDWATER IMPACT**

The magnitude and extent of dissolved TPHg and benzene are illustrated in Figures 8 and 9, respectively. Sampling data collected during the fourth quarter 2005 confirm a significant reduction in the magnitude of groundwater impact relative to pre-remediation contaminant levels. Relative to fourth quarter 2004 sampling data, the magnitude of dissolved TPHg and benzene (i.e., the only monitored parameters present above their respective water quality objectives) in monitoring wells MW-3, MW-8, and MW-10 (i.e., the central plume core) has decreased more than 96 percent.

Contaminant concentrations increased slightly in monitoring wells MW-15 and MW-17 relative to the previous year. These wells are positioned hydraulically downgradient of the plume core and are outside the zone influenced by chemical oxidation. Chemical oxidation can weaken the bonding strength of adsorbed contaminants and temporarily increase dissolved contaminant concentrations. Despite these minor increases, concentrations of dissolved contaminants at these locations are significantly below historical concentrations.





#### **4.0 ANNUAL REVIEW OF GROUNDWATER SAMPLING DATA**

Groundwater monitoring activities performed by BB&A in 2005 were presented in Quarterly Update Reports dated May 31, July 29, and October 21, 2005. Selected findings from the above referenced reports are summarized below:

- The direction of groundwater movement is towards the northeast;
- The orientation of the groundwater contaminant plume is consistent with the direction of groundwater flow. The plume encompasses monitoring well MW-3 and recovery well RW-1, a distance of more than 400 feet;
- The magnitude of groundwater impact varies seasonally with the highest levels occurring during periods of low groundwater and *vice versa*;
- Natural attenuation parameters were measured at select wells in September 2005 and confirm the following:
  - Aerobic degradation is occurring within the plume core based on dissolved oxygen depletion and the documented presence of hydrocarbon degrading bacteria;
  - Anaerobic degradation is occurring within the plume based on ferric iron detected in monitoring well MW-8 and sulfate and nitrate depletion within the plume;
- The presence of residual petroleum hydrocarbons in direct contact with groundwater represents an ongoing source of groundwater impact.

An annual assessment of groundwater conditions is discussed in the following sections.

##### **4.1 Seasonal Groundwater Table Elevations**

Groundwater recharge occurs principally through direct infiltration of surface water. Changes in the elevation of the groundwater surface, therefore, closely reflect patterns of seasonal precipitation. Figure 10 illustrates the minimum, maximum, and mean groundwater elevations for 2005. The graph confirms a cyclical pattern of groundwater elevations. The mean annual groundwater elevation at all monitoring wells for 2005 was 21.68 feet ASL. The maximum annual groundwater elevation of 23.97 feet ASL occurred in April 2005. The minimum annual groundwater elevation of 19.02 occurred in September 2005. The cyclical pattern of groundwater elevations illustrated in Figure 10 is consistent with monitoring data recorded during previous intervals.

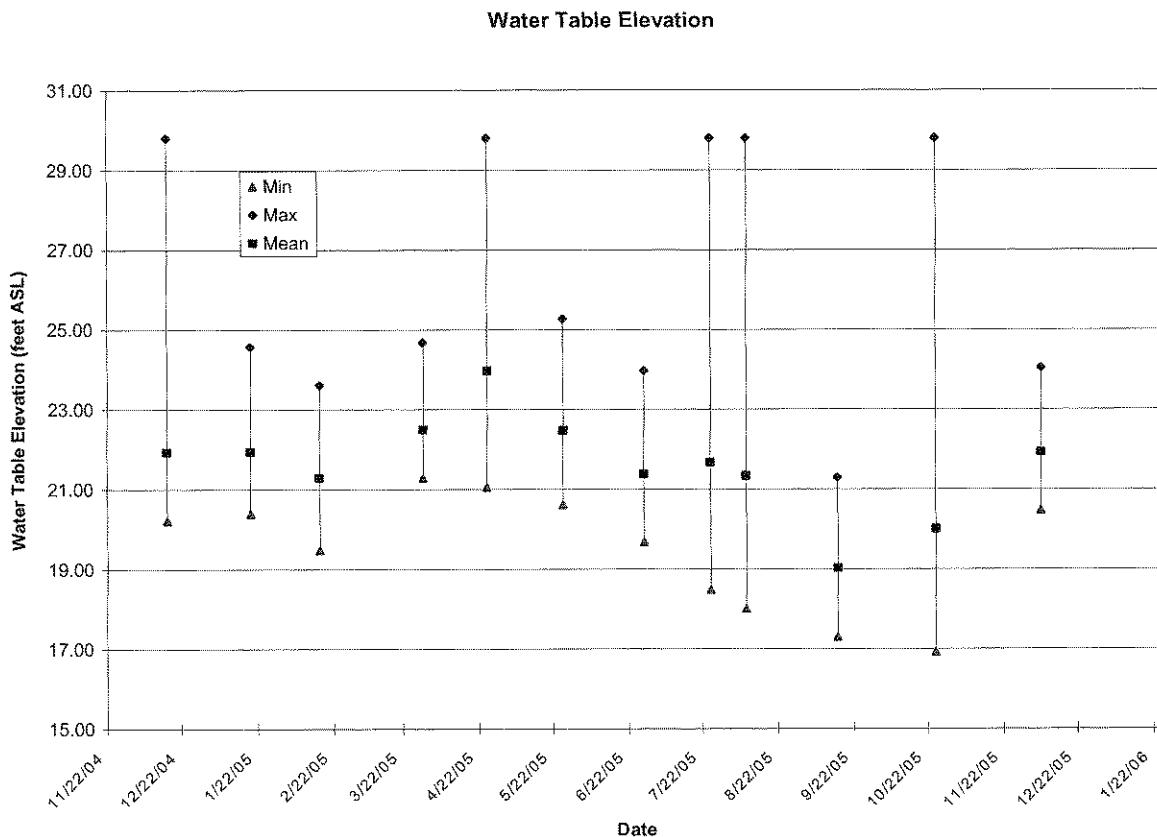


Figure 10 – 2005 Groundwater Table Elevations

#### **4.2 Natural Attenuation Trends**

Monitoring wells MW-3 and MW-8 are well suited to characterize up gradient and central locations along the longitudinal axis of the groundwater contaminant plume. An analysis of sampling data collected prior to beginning ISCO remediation activities indicates the decreasing rate of contaminant concentrations at these locations may be closely approximated using an exponential model. Using regression analysis, the exponential attenuation constants for monitoring wells MW-3 and MW-8 were calculated to be -0.00118 per day and -0.00028 per day (i.e., 43.0 and 10.3 percent per year), respectively. Slower contaminant attenuation at monitoring well MW-8 is due to the presence of impacted soils in contact with groundwater and its central position within the groundwater contaminant plume.

Figure 11 illustrates historical TPHg sampling data in monitoring wells MW-3 and MW-8 through December 2004. This period, prior to ISCO remediation activities, reflects the plume reduction characteristics based on natural attenuation mechanisms. To exclude the effects of seasonal dilution, first quarter (i.e., March) sampling data have been omitted. The data, presented on log-normal axes, confirm a strong exponential characteristic.

### Dissolved TPHg in Monitoring Wells MW-3 and MW-8

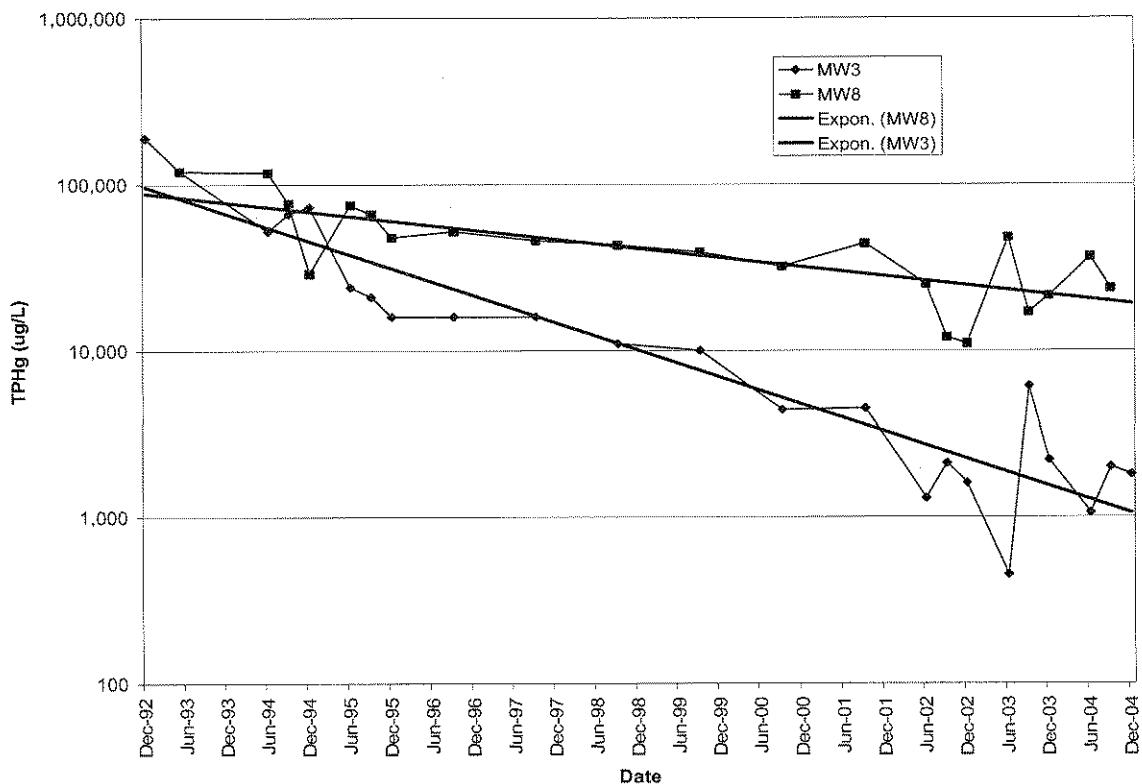


Figure 11 – Dissolved TPHg in Monitoring Wells MW-3 and MW-8

Natural attenuation mechanisms were confirmed during the March 2004 and September 2005 sampling events. Sampling data collected during these events confirmed the occurrence of aerobic and anaerobic biodegradation mechanisms. The natural attenuation rate does not account for the effects of mechanical remediation activities which tend to accelerate the attenuation rate by reducing the mass of residual contaminants.

#### **4.3 Compliance Evaluation**

Table 6 presents the highest concentration of monitored groundwater contaminants recorded during 2005. The recommended water quality objective is presented for comparison. Table 6 also presents the maximum MNA Baseline Objective for reference. This value represents the highest contaminant concentration which will decrease to the water quality objective within a period of five (5) years based on the documented rate of biodegradation (i.e., -0.00118 per day). Based on demonstrated natural attenuation, a reduction or suspension of sampling activities may be warranted at monitoring wells in which levels of contaminants are below initial MNA Baseline Objectives.

**Table 6. Maximum Contaminant Concentrations: 2005**

Monitoring Well ID	TPHg	Benzene	Toluene	Ethylbenzene	Xylene
MW-2	<50	<0.50	<0.50	<0.50	<0.50
MW-3	<b>920</b>	4.0	1.7	0.85	8.95
MW-5	<50	<0.50	<0.50	<0.50	<0.50
MW-6	<b>880</b>	5.5	0.97	1.2	1.2
MW-7	<b>730</b>	<b>12.0</b>	2.6	1.4	2.2
MW-8	<b>1,600</b>	<b>33.0</b>	18.0	39.0	88.0
MW-10	250	3.1	4.0	12.0	13.0
MW-11	<b>890</b>	7.8	0.98	24	6.3
MW-12	88	<b>29.0</b>	<0.50	<0.50	<0.50
MW-13	<50	<0.50	<0.50	<0.50	<0.50
MW-14	<50	<0.50	<0.50	<0.50	<0.50
MW-15	<b>870</b>	<b>39.0</b>	1.3	4.0	2.5
MW-16	<b>460</b>	<b>74.0</b>	2.2	8.9	3.1
MW-17	<b>2,000</b>	<b>12.0</b>	3.0	4.0	6.4
RW-1	260	<b>17.0</b>	0.65	<0.50	<0.50
Water Quality Objective	50	1	42	29	17
MNA Baseline Objective	430	8.6	360	250	150

Units: All units in ug/L (ppb)  
Assumes MNA decay rate of -0.00118/day  
Attenuation period: 5 years  
Values in bold exceed initial MNA concentration

ISCO remediation performed in 2005 has significantly reduced the magnitude and extent of groundwater impact, particularly within the core of the plume. Concentrations of TPHg and benzene in the plume core (i.e., monitoring wells MW-3, MW-8, and MW-10) have decreased more than 96 percent relative to December 2004. Concentrations of TPHg and BTEX in monitoring well MW-10 were below their respective MNA Baseline Objectives during all 2005 sampling events. Concentrations of TPHg and BTEX in monitoring wells MW-3 and MW-8 were below their respective MNA Baseline Objectives for most of 2005.

During 2005, concentrations of dissolved TPHg and BTEX were below laboratory MRLs in monitoring wells MW-2, MW-5, MW-13, and MW-14. These wells are positioned upgradient and downgradient relative to the contaminant plume and indicate remedial activities have not contributed to the expansion of the plume boundaries.

In 2005, the highest concentrations of TPHg and benzene were detected in monitoring well MW-17 (2,000 µg/L) and MW-16 (74 µg/L), respectively. The emergence of these wells as the most heavily impacted does not represent an expansion of the plume. In fact, contaminant concentrations at these locations are significantly lower than concentrations recorded in 2004. Rather, annual

maximum contaminant concentrations were recorded at these downgradient locations due to the significant contaminant reductions achieved in the plume core in 2005.

Highlighted data in Table 6 indicate the MNA Baseline Objectives for TPHg and benzene were exceeded at least once at these wells during 2005. At monitoring wells MW-8, MW-16, and MW-17, concentrations of benzene and/or TPHg exceeded their respective MNA Baseline Objectives on two (2) occasions. For all other indicated wells, concentrations of dissolved TPHg and benzene exceeded their respective MNA Baseline Objectives during only one (1) sampling event of 2005. These results indicate that concentrations of dissolved contaminants are below their respective MNA Baseline Objectives during a significant portion of the year. It is anticipated that concentrations of dissolved contaminants at all sampling locations will decrease below their respective MNA Baseline Objectives following six (6) to nine (9) months of additional ISCO remediation. Once the magnitude of groundwater impact has been reduced to these baseline objectives, BB&A anticipates natural attenuation mechanisms will continue to reduce contaminant concentrations and achieve water quality objectives within approximately five (5) years.

## **5.0 SUMMARY**

### **5.1 Conclusions**

The findings from recent investigative activities are summarized below:

1. On December 7, 2005, BB&A performed fourth quarter 2005 monitoring activities at the former Alliance Mini Mart located at 1070 Highway 101 North in Crescent City.
2. During the December 2005 monitoring event, the elevation of the groundwater surface ranged from 20.47 feet ASL in monitoring well MW-15 to 24.04 feet ASL in monitoring well MW-2. The direction of groundwater movement was towards the northeast at a gradient of approximately 0.0080.
3. The ISCO remediation systems operated continuously during the current reporting period. In December 2005, BB&A replaced the pistons, valves, and gaskets on the ozone compressors. Increased operating pressure was observed immediately after completing mechanical repairs.
4. The average groundwater temperature for December 2005 was 16.0 degrees Centigrade. Groundwater pH ranged from 5.5 to 7.3 SU. Concentrations of DO ranged from 0.0 mg/L to 7.4 mg/L. The average concentrations of DO inside and outside the remediation zone were 4.90 mg/L and 0.08 mg/L, respectively. ORP measurements ranged from -76 mV (MW-14) to 203 mV. The average ORP measurements inside and outside the remediation zone were 139 mV and 62 mV, respectively.
5. After one (1) year of ISCO remediation, concentrations of TPHg and benzene in plume core wells (i.e., MW-3, MW-8, and MW-10) have decreased more than 96 percent.

6. The highest annual concentrations of TPHg and benzene were detected in monitoring wells MW-17 (2,000 µg/L) and MW-16 (74 µg/L), respectively. Contaminant concentrations at these locations are significantly lower than levels recorded prior to remediation activities.
7. Dissolved molybdenum, selenium, vanadium, and hexavalent chromium were not detected in Group A wells above laboratory MRLs during the first three (3) quarters of 2005. Total molybdenum, selenium, and vanadium were not detected in Group A wells during the fourth quarter 2005. With the exception of monitoring well MW-17 (50 µg/L), total hexavalent chrome was not detected in Group A wells above laboratory MRLs during the fourth quarter 2005.
8. Bromide and bromate ( $\text{BrO}_3$ ) were not detected in Group A monitoring wells above laboratory MRLs in 2005.

## **5.2 Recommendations**

Based on the findings of recent and historical investigative activities, the following recommendations are offered:

1. The following groundwater parameters should continue to be measured monthly at all monitoring wells: Depth to groundwater, pH, DO, conductivity, TDS, temperature, turbidity, and ORP. Monthly maintenance of the ISCO remediation systems is recommended.
2. Groundwater sampling should be suspended at the following locations: Monitoring wells MW-2, MW-5, MW-12, MW-13, MW-14, recovery well RW-1.
3. Sampling data confirm the absence of dissolved and total molybdenum, selenium, and vanadium above laboratory MRLs at all Group A monitoring wells. Sampling data confirm the absence of bromide and bromate above laboratory MRLs at all Group A monitoring wells. Sampling for these parameters should be suspended at all Group A monitoring wells.
4. Subject to the Recommendation Number 2, Group A monitoring wells should be sampled quarterly for TPHg, BTEX, and dissolved hexavalent chromium. The findings of quarterly monitoring activities should be submitted in Update Reports to the North Coast RWCB.
5. If first and second quarter 2006 sampling data confirm plume core contaminant concentrations are near or below MNA Baseline Objectives, ISCO remediation activities will be suspended in August 2006. Sampling data from the third quarter (i.e., September) 2006 will be reviewed for contaminant increases due to seasonal effects and/or the suspension of remedial actions. If significant contaminant "rebound" is confirmed, BB&A may resume ISCO remediation activities. However, if significant "rebound" is not confirmed, BB&A will initiate a period of final compliance monitoring (i.e., four [4] consecutive quarterly sampling events) at all actively sampled monitoring wells beginning with the September 2006 sampling event. An annual review of final compliance

monitoring data will be submitted the North Coast RWQCB following completion of final compliance monitoring (i.e., the second quarter 2007). If contaminant concentrations at all sampled wells remain near or below proposed MNA Baseline Objectives, BB&A may recommend suspending further sampling and monitoring activities and request written determination from the North Coast RWQCB that no further action is required regarding cleanup and/or investigation of the site.

## **6.0 LIMITATIONS**

Professional services of Bergeson-Boese & Associates, Inc. have been performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental research and consulting firms practicing in this or similar localities. No other warranty, express or implied, is made as to the professional advice included in this report.

The conclusions presented in this report are based on observations made during field investigation and data provided by others. The findings of this assessment should not be considered as scientific certainties, but rather as professional opinion based upon selected and limited data.

Should you have any questions regarding the findings presented in this report, please feel to contact me in our Eugene office at extension 136 or via email at cbstine@bergeson-boese.com.

Respectfully Submitted,  
Bergeson-Boese & Associates, Inc.



Christopher B. Stine, PE  
Project Engineer

Jim A. Kooiman, PE  
Principal

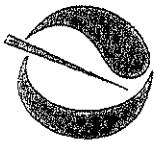


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**APPENDIX A**

**Monitoring and Reporting Program**



California Regional Water Quality Control Board  
North Coast Region  
**Beverly Wasson, Chairperson**



Alan C. Lloyd, Ph.D.  
Agency Secretary

<http://www.waterboards.ca.gov/>  
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403  
Phone: 1 (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Arnold  
Schwarzenegger  
Governor

June 2, 2005

Mr. Dean Otten  
P.O. Box 128  
Crescent City, CA 95531

Dear Mr. Otten:

Subject: Alliance Minimart, 1070 Highway 101, North, Crescent City, Case No. 1TDN032

Enclosed is Monitoring and Reporting Program No. R1-2005-0054 for the subject site. The MARP requires specific sampling and analysis of constituents of concern, and establishes a formal reporting schedule. In addition to analyzing samples for discharged contaminants, analysis of samples for potential byproducts of the ozone treatment system is also required.

If you have any questions or comments, please call me at (707) 576-2642.

Sincerely,

Cody Walker  
Engineering Geologist

CSW:tab/060205\_csw\_Alliance\_Martrans.doc

Enclosure: Monitoring and Reporting Program No. R1-2005-0054

cc: Mr. Jeff Delgado, SWRCB, UST Cleanup Fund  
Mr. Leon Perreault, Del Norte County Health Department  
Mr. Chris Stine, Bergeson-Boese & Associates, Inc., 65 Centennial Loop,  
Eugene, OR 97401  
Mr. James Pena, Caltrans District 1, P.O. Box 3700, Eureka, CA 95502  
Mr. Franklin Saylor, Redding DOHS DDW, 415 Knollcrest Drive, Suite 110,  
Redding, CA 96002

California Regional Water Quality Control Board  
North Coast Region

MONITORING AND REPORTING PROGRAM NO. R1-2005-0054

FOR

ALLIANCE MINI-MART

1070 HIGHWAY 101, NORTH  
CRESCENT CITY, CALIFORNIA

DEL NORTE COUNTY

**MONITORING**

1. Prior to purging, the depth to groundwater shall be determined quarterly to at least 0.01 foot increments in all groundwater monitoring wells. The data generated from the elevation readings must be referenced to mean sea level.
2. Water samples shall be collected for analysis on a quarterly schedule from monitoring wells MW-3, MW-5 through MW-8, MW-10, MW-11 and MW-15 through MW-17.
3. Water samples shall be collected for analysis on a semiannual schedule, during the second and fourth quarters of each year from monitoring wells MW-2, MW-12, MW-13, MW-14 and recovery well RW-1.
4. Water samples shall be analyzed for TPH-gasoline, benzene, toluene, ethylbenzene, and xylenes. Sample analysis must be performed at a certified laboratory. Field parameters temperature, pH, conductivity, dissolved oxygen and oxidation/reduction potential shall be measured in conjunction with each well's water sampling schedule.
5. Monitoring wells on the quarterly sampling schedule (Monitoring Item 2) shall be sampled for analysis of the following parameters: dissolved oxygen, ORP, temperature, pH, bromide, bromate, dissolved hexavalent chromium, dissolved vanadium, dissolved selenium, and dissolved molybdenum. The dissolved oxygen, ORP, temperature, and pH shall be measured in the field. The laboratory reporting limit for hexavalent chromium should be no higher than 5 µg/l and the laboratory reporting limit for bromate should be no higher than 10 µg/l.

## REPORTING

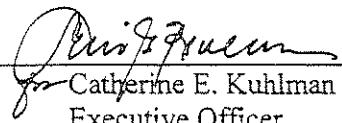
1. Quarterly monitoring reports shall be submitted to this office in accordance with the following schedule:

<u>Reporting Period</u>	<u>Due Date</u>
January, February, March	May 1
April, May, June	August 1
July, August, September	November 1
October, November, December	February 1

2. A groundwater elevation contour map shall be included for each set of measurements and shall include the following:
  - a) location of onsite facilities;
  - b) location of the monitoring wells;
  - c) location of the former underground tanks; and
  - d) groundwater flow pattern including the direction of the groundwater gradient.
3. A contamination isogram map shall be included for each significant pollutant detected during the monitoring events and shall include the following:
  - a) location of the facilities;
  - b) location of the monitoring wells; and
  - c) location of the former underground tanks.
4. Current and previous analytical results shall be reported in tables which include the following:
  - a) sampling point;
  - b) date of sample collection;
  - c) constituents and analytical results; and
  - d) quantification limits employed for non-detect analytical results.
5. Current and previous remedial system operation and maintenance activities shall be reported in the monitoring reports.
6. Each report shall contain copies of the well purging and sampling field logs; chain of custody documents showing the time and date of collection and person collecting; and signed laboratory sheets including quality control data and explanations of analytical anomalies, if any. These supporting documents may be included as appendices to the report.

7. Monitoring data and reports shall also be submitted electronically to the State Water Resources Control Board's GeoTracker database.

Ordered by

  
Catherine E. Kuhlman  
Executive Officer

June 2, 2005

(060205\_csw\_Alliance\_Marp)

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**APPENDIX B**

**Groundwater Parameters**

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

### Monitoring Well MW-2

Wellhead Elevation: 30.86  
Resurveyed 02/05/03; 31.27

Date	TZ feet	TW feet	SU	P	O	D	TD	ORP
22-Mar-04	5.92	25.35	6.40	37.4	19	8.50	13.2	191
16-Dec-04	8.11	23.16	5.20	11.0	6	7.80	15.5	292
19-Jan-05	6.70	24.57	4.70	10.0	670	9.70	14.2	0.06
16-Feb-05	7.66	23.61	4.60	10.0	(5)	9.60	13.8	370
30-Mar-05	6.59	24.68	6.11	10.4	15	11.77	13.8	424
25-Apr-05	5.51	25.76	5.59	9.8	2	12.36	13.5	340
26-May-05	6.00	25.27	4.14	11.1	(5)	13.10	13.9	597
28-Jun-05	7.30	23.97	6.05	8.7	52	7.54	15.0	0.07
25-Jul-05	8.39	22.88	6.94	10.6	191	4.52	15.2	194
9-Aug-05	8.91	22.36	6.63	10.4	58	2.95	15.1	0.06
15-Sep-05	9.98	21.29	6.64	10.7	112	2.87	15.6	184
25-Oct-05	10.69	20.58	6.44	11.0	160	1.70	15.7	0.07
7-Dec-05	7.23	24.04	6.10	6.7	103	6.75	14.7	47

### Monitoring Well MW-3

Wellhead Elevation: 30.67  
Resurveyed 02/05/03; 30.23

Date	TZ feet	TW feet	SU	P	O	D	TD	ORP
22-Mar-04	5.72	24.51	6.20	16.2	15	0.00	12.5	0.10
16-Dec-04	7.89	22.34	5.60	23.0	36	1.70	15.4	26
19-Jan-05	6.55	23.68	4.90	20.0	640	5.20	13.1	95
16-Feb-05	7.42	22.81	4.50	16.0	0	8.80	13.0	227
30-Mar-05	6.47	23.76	5.65	11.1	9	7.09	13.6	415
25-Apr-05	5.35	24.88	6.15	9.0	8	11.42	13.8	254
26-May-05	5.79	24.44	3.84	19.8	39	11.61	15.3	581
28-Jun-05	7.11	23.12	5.87	17.5	7	1.82	16.1	189
25-Jul-05	8.20	22.03	6.11	23.6	44	1.96	17.0	0.11
9-Aug-05	8.69	21.54	6.36	27.1	334	0.00	16.1	108
15-Sep-05	9.82	20.41	6.79	23.2	166	0.00	17.2	0.15
25-Oct-05	10.56	19.67	6.27	23.9	39	0.00	16.9	0.16
7-Dec-05	6.78	23.45	5.78	10.5	55	3.33	14.1	447

### Monitoring Well MW-5

Wellhead Elevation: 30.33  
Resurveyed 02/05/03; 29.90

Date	Z feet	T feet	E feet	SU	Conductivity	Turbidity	DO	Temperature	RD
22-Mar-04	5.75	24.15	6.20	8.2	53	8.00	13.4	0.10	218
16-Dec-04	7.73	22.17	4.90	12.0	49	9.30	15.1		328
19-Jan-05	6.45	23.45	4.50	11.0	(5)	13.90	13.4	0.07	371
16-Feb-05	6.94	22.96	4.70	11.0	300	11.40	13.4	0.07	436
30-Mar-05	6.27	23.63	6.09	7.9	(5)	12.90	13.7	0.05	327
25-Apr-05	5.26	24.64	6.17	4.9	190	16.13	13.5	0.03	602
26-May-05	5.72	24.18	4.34	7.6	710	14.32	14.7	0.05	196
28-Jun-05	7.05	22.85	6.48	6.7	316	11.54	15.9	0.04	161
25-Jul-05	8.10	21.80	6.91	7.3	29	8.54	16.0	0.05	130
9-Aug-05	8.65	21.25	6.91	7.7	303	7.22	15.7	0.05	138
15-Sep-05	9.71	20.19	6.70	20.1	605	5.45	16.1	0.13	94
25-Oct-05	10.29	19.61	6.31	20.4	85	2.25	16.3	0.13	86
7-Dec-05	7.10	22.80	6.32	7.7	61	9.41	15.3	0.05	173

### Monitoring Well MW-6

Wellhead Elevation: 29.92  
Resurveyed 02/05/03; 29.51

Date	Z feet	T feet	E feet	SU	Conductivity	Turbidity	DO	Temperature	RD
22-Mar-04	6.29	23.22	6.10	18.0	92	5.00	13.8	0.10	240
16-Dec-04	8.07	21.44	5.10	8.0	9	6.60	15.0		291
19-Jan-05	6.95	22.56	5.12	19.0	510	10.90	13.1	0.12	281
16-Feb-05	7.91	21.60	4.80	17.0	0	7.80	13.3	0.11	409
30-Mar-05	6.95	22.56	6.61	17.6	(5)	8.75	13.6	0.12	297
25-Apr-05	5.91	23.60	6.22	14.9	0	11.21	13.5	0.10	482
26-May-05	6.30	23.21	4.60	18.8	9	13.04	14.9	0.12	164
28-Jun-05	7.60	21.91	5.91	26.1	243	0.64	15.6	0.17	164
25-Jul-05	8.56	20.95	6.38	26.6	47	0.00	15.5	0.17	164
9-Aug-05	9.03	20.48	6.55	25.6	(5)	0.00	15.9	0.17	123
15-Sep-05	10.00	19.51	6.81	13.8	785	5.88	16.3	0.09	94
25-Oct-05	10.62	18.89	6.35	10.9	485	0.85	16.2	0.07	4
7-Dec-05	7.38	22.13	6.25	10.2	179	4.33	14.0	0.07	128

### Monitoring Well MW-7

Wellhead Elevation: 30.43  
Resurveyed 02/05/03; 30.71

Date	Z	WT	T	E	O	D	S	TDS	Temperature	Conductivity	Turbidity	Specific Gravity	ORP
22-Mar-04	7.08	23.63	6.00	11.2	17	4.30	12.5	0.00	202				
16-Dec-04	8.79	21.92	5.00	15.0	36	0.60	17.1		272				
19-Jan-05	7.61	23.10	4.40	14.0	150	7.80	14.6	0.09	308				
16-Feb-05	8.59	22.12	5.50	14.0	0	7.70	14.5	0.09	324				
30-Mar-05	7.64	23.07	5.80	19.5	8	4.43	14.0	0.13	268				
25-Apr-05	6.55	24.16	5.29	17.8	0	7.48	14.4	0.12	376				
26-May-05	7.06	23.65	3.81	21.0	16	10.94	14.6	0.14	190				
28-Jun-05	8.25	22.46	5.75	17.1	0	1.02	15.4	0.11	94				
25-Jul-05	9.36	21.35	6.06	16.3	5	0.20	15.8	0.11	130				
9-Aug-05	9.82	20.89	6.19	18.4	44	0.34	16.1	0.12	93				
15-Sep-05	10.83	19.88	6.12	23.8	348	0.00	16.9	0.16	35				
25-Oct-05	11.48	19.23	5.98	34.2	46	0.00	16.9	222.00	(47)				
7-Dec-05	8.02	22.69	5.68	14.1	48	0.50	15.4	0.09	-106				

### Monitoring Well MW-8

Wellhead Elevation: 29.93  
Resurveyed 02/05/03; 29.42

Date	Z	WT	T	E	O	D	S	TDS	Temperature	Conductivity	Turbidity	Specific Gravity	ORP
22-Mar-04	6.59	22.83	6.50	25.9	37	0.00	15.9	0.20	44				
16-Dec-04	8.08	21.34	5.90	38.0	32	10.70	17.9		148				
19-Jan-05	7.14	22.28	5.40	36.0	270	7.90	16.4	0.23	145				
16-Feb-05	7.98	21.44	5.70	27.0	(5)	10.30	16.0	0.17	334				
30-Mar-05	7.10	22.32	7.12	11.8	0	10.97	16.1	0.08	237				
25-Apr-05	6.03	23.39	5.98	10.8	0	8.51	15.9	0.07	218				
26-May-05	7.04	22.38	5.27	17.9	330	14.50	16.6	0.12	183				
28-Jun-05	7.81	21.61	6.62	22.1	324	8.25	17.6	0.15	23				
25-Jul-05	8.55	20.87	7.01	51.2	24	0.00	17.9	0.33	(42)				
9-Aug-05	9.23	20.19	7.67	36.0	163	6.89	17.0	0.23	105				
15-Sep-05	10.05	19.37	7.43	20.2	627	6.13	18.9	0.13	35				
25-Oct-05	10.69	18.73	7.04	22.3	73	7.49	18.8	0.15	132				
7-Dec-05	7.34	22.08	7.25	12.1	37	7.40	18.1	0.08	100				

### Monitoring Well MW-10

Wellhead Elevation: 29.47  
Resurveyed 02/05/03; 29.47

Date	Z	T	P	Conductivity	Turbidity	D	ORP	Temperature
22-Mar-04	6.95	22.52	7.10	34.1	91	0.30	15.8	0.20
16-Dec-04	8.15	21.32	5.70	50.0	43	3.60	17.9	-123
19-Jan-05	7.13	22.34	5.20	49.0	590	5.70	15.8	0.32
16-Feb-05	8.35	21.12	5.50	35.0	(5)	10.20	15.9	289
30-Mar-05	7.50	21.97	7.04	28.5	0	6.60	16.3	0.19
26-Apr-05	5.96	23.51	6.18	35.3	7	8.99	16.8	0.23
26-May-05	7.01	22.46	4.72	22.2	(5)	14.06	17.0	182
28-Jun-05	8.09	21.38	6.29	17.6	80	8.51	19.1	0.14
25-Jul-05	8.69	20.78	6.55	17.8	505	5.83	18.1	207
9-Aug-05	9.38	20.09	6.63	17.4	(5)	6.10	18.5	0.12
15-Sep-05	10.44	19.03	6.78	16.9	(5)	2.81	18.4	0.11
25-Oct-05	11.00	18.47	6.74	30.4	75	0.00	18.6	139
7-Dec-05	7.83	21.64	6.83	26.6	50	2.60	18.1	0.20

### Monitoring Well MW-11

Wellhead Elevation: 29.87  
Resurveyed 02/05/03; 29.87

Date	Z	T	P	Conductivity	Turbidity	D	ORP	Temperature
22-Mar-04	7.73	22.14	6.90	1.3	15	1.30	15.3	0.20
16-Dec-04	8.96	20.91	5.70	32.0	3	0.30	16.2	77
19-Jan-05	8.26	21.61	4.80	30.0	210	1.10	14.9	70
16-Feb-05	9.18	20.69	5.20	32.0	31	5.10	15.6	190
30-Mar-05	8.11	21.76	6.79	37.3	390	4.41	15.3	0.21
25-Apr-05	7.16	22.71	5.97	31.6	34	8.29	15.7	133
26-May-05	7.71	22.16	4.54	34.9	390	10.55	15.7	288
28-Jun-05	8.82	21.05	6.28	24.9	19	1.44	16.4	71
25-Jul-05	9.78	20.09	6.52	22.3	43	0.00	16.3	68
9-Aug-05	10.16	19.71	7.01	21.9	97	0.00	16.4	0.16
15-Sep-05	11.04	18.83	6.64	17.0	88	0.62	17.1	119
25-Oct-05	11.65	18.22	6.37	17.5	86	0.00	16.9	207
7-Dec-05	8.52	21.35	6.33	16.6	73	0.14	16.4	81

### Monitoring Well MW-12

Wellhead Elevation: 28.36  
Resurveyed 02/05/03 - 28.36

Date	D <sub>T</sub>	WT <sub>E</sub>	WT <sub>F</sub>	WT <sub>E</sub>	WT <sub>F</sub>	Turbidity	Cond <sub>O</sub>	Cond <sub>D</sub>	TDS	ORP	Temperature
22-Mar-04	6.92	21.44				5.60	14.4	37	3.10	14.8	0.10
16-Dec-04	7.75	20.61				4.40	14.0	130	1.40	16.2	291
19-Jan-05	7.25	21.11				3.60	14.0	640	2.00	15.3	165
16-Feb-05	8.19	20.17				4.30	14.9	(5)	5.60	14.9	0.09
30-Mar-05	6.79	21.57				5.57	13.2	40	6.28	14.2	0.09
25-Apr-05	6.39	21.97				5.10	16.1	4	7.18	14.6	0.10
26-May-05	6.90	21.46				3.66	17.3	39	9.81	14.9	0.11
28-Jun-05	7.89	20.47				5.58	13.5	20	0.00	15.5	21
25-Jul-05	8.80	19.56				5.80	13.9	720	0.00	15.9	0.09
9-Aug-05	9.18	19.18				5.88	14.4	466	0.00	16.1	0.09
15-Sep-05	9.97	18.39				5.94	11.5	80	1.77	17.0	0.08
25-Oct-05	10.48	17.88				5.47	12.0	675	0.76	17.1	0.08
7-Dec-05	7.33	21.03				5.58	12.6	101	0.43	16.5	0.08

### Monitoring Well MW-13

Wellhead Elevation: 26.67

Date	D <sub>T</sub>	WT <sub>E</sub>	WT <sub>F</sub>	Turbidity	Cond <sub>O</sub>	Cond <sub>D</sub>	TDS	ORP	Temperature	
22-Mar-04	5.95	20.72			7.30	0.1	7	0.00	13.0	0.60
16-Dec-04	5.71	20.96			5.10	48.0	3	1.20	14.3	(47)
19-Jan-05	5.59	21.08			4.50	53.0	260	0.60	12.7	(155)
16-Feb-05	6.69	19.98			5.50	84.0	0	5.30	12.7	0.54
30-Mar-05	4.66	22.01			6.51	45.7	100	4.68	13.0	(69)
25-Apr-05	5.12	21.55			6.54	50.9	40	7.50	13.7	(3)
26-May-05	5.36	21.31			4.53	58.5	200	10.00	14.8	(165)
28-Jun-05	6.45	20.22			6.47	62.8	2	0.00	15.8	(99)
25-Jul-05	7.96	18.71			6.58	66.2	76	0.00	16.4	0.42
9-Aug-05	8.35	18.32			6.35	52.6	320	0.00	16.0	0.34
15-Sep-05	8.98	17.69			6.59	42.4	86	0.00	16.5	(67)
25-Oct-05	9.40	17.27			6.00	36.6	48	0.00	16.6	(58)
7-Dec-05									237.00	(60)

### Monitoring Well MW-14

Wellhead Elevation: 26.26

Date	DFE	WTE	Turbidity	Conductivity	DO	Temperature	RS
22-Mar-04	5.54	20.72	7.00	65.2	33	0.60	12.5
16-Dec-04	5.27	20.99	5.00	46.0	22	0.60	13.8
19-Jan-05	5.63	20.63	4.30	51.0	24	0.40	11.5
16-Feb-05	6.73	19.53	5.20	56.0	(5)	5.10	11.6
30-Mar-05	4.15	22.11	6.05	35.9	37	6.62	12.4
25-Apr-05	4.98	21.28	6.35	50.8	69	7.19	12.5
26-May-05	5.37	20.89	4.38	58.2	360	10.03	13.9
28-Jun-05	6.59	19.67	6.29	49.9	43	0.00	14.9
25-Jul-05	7.79	18.47	6.54	59.2	30	0.00	15.9
9-Aug-05	8.26	18.00	6.32	62.5	74	0.00	15.9
15-Sep-05	8.97	17.29	6.43	62.5	87	2.89	16.7
25-Oct-05	9.34	16.92	5.88	60.3	53	1.54	16.0
7-Dec-05	4.76	21.50	6.28	37.1	98	0.00	14.1

Monitoring Well MW-14

Wellhead Elevation: 26.92

### Monitoring Well MW-15

Wellhead Elevation: 26.92

Date	DFE	WTE	Turbidity	Conductivity	DO	Temperature	RS
22-Mar-04	6.42	20.50	6.60	31.6	25	0.00	14.4
16-Dec-04	6.71	20.21	4.90	32.0	11	0.60	15.3
19-Jan-05	6.54	20.38	4.10	36.0	41	0.30	14.1
16-Feb-05	7.45	19.47	5.00	34.0	0	5.00	13.5
30-Mar-05	5.63	21.29	6.22	34.5	18	4.15	13.9
25-Apr-05	5.87	21.05	5.61	28.7	0	6.77	13.3
26-May-05	6.31	20.61	4.22	36.1	14	9.90	13.9
28-Jun-05	7.24	19.68	6.20	24.0	2	0.00	14.5
25-Jul-05	8.11	18.81	6.79	27.9	7	0.00	14.9
9-Aug-05	7.29	19.63	6.55	28.9	25	0.00	15.0
15-Sep-05	9.16	17.76	6.51	24.4	119	0.00	15.5
25-Oct-05	9.60	17.32	6.09	25.1	38	0.00	15.8
7-Dec-05	6.45	20.47	6.06	26.7	43	0.00	15.5

Monitoring Well MW-16

Wellhead Elevation: 29.80

Date	WTE	Coal	Gas	Diesel	Oil	Hydro	Wind	Solar	Geothermal	Other	Imports	Exports
22-Mar-04	9.00	20.80										
16-Dec-04	8.32	21.48										
19-Jan-05	9.26	20.54										
16-Feb-05	8.06	21.74										
30-Mar-05	7.40	22.40										
25-Apr-05		28.80										
26-May-05	7.95	21.85										
28-Jun-05	8.99	20.81	6.75	21.0	7	0.00	16.4	0.14	11			
25-Jul-05		29.80										
9-Aug-05		29.80										
15-Sep-05	11.19	18.61		7.00	36.3	104	0.00	16.7	0.24	2		
25-Oct-05		28.80										
7-Dec-05	8.50	21.30		6.78	32.9	63	0.00	16.6	0.21	19		

Monitoring Well MW-17

Wellhead Elevation: 29.80

## Recovery Well RW-1

Wellhead Elevation: 27.86

Date	WTB	DTE	WTB	DTE	Conductivity	O2	Turbidity	Temperature	TDS	ORP
22-Mar-04	6.86	21.00	5.90	26.3	81	0.00	15.2	0.20	251	
16-Dec-04	7.56	20.30	4.30	24.0	17	0.50	16.7		282	
19-Jan-05	7.15	20.71	3.50	21.0	5	0.50	15.7	0.14		163
16-Feb-05	8.03	19.83	4.30	23.0	0	5.20	15.5	0.15		259
30-Mar-05	6.58	21.28	5.73	21.6	18	5.06	14.4	0.14		140
25-Apr-05	6.35	21.51	5.11	20.6	0	7.40	15.0	0.13		420
26-May-05	6.82	21.04	3.40	21.7	6	9.07	15.1	0.14		161
28-Jun-05	7.55	20.31	5.73	19.2	0	15.93		0.126		185
25-Jul-05	8.65	19.21	5.66	19.5	2.1	0	15.76	0.127		196
9-Aug-05	9.06	18.80	5.88	19.6	23.6	0	16.4	0.127		153
15-Sep-05	9.76	18.10	5.8	16.9	66.8	0.13	17.7	0.11		185
25-Oct-05	10.22	17.64	5.85	18.2	34.7	0.42	17.28	118		110
7-Dec-05	7.19	20.67	5.53	17.4	76.5	0	16.71	0.113		197

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**APPENDIX C**

**Historical Groundwater Monitoring Data**

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 30.86  
Resurveyed Feb. 5, 2003: 31.27

## Monitoring Well MW-2

Date	DTW feet	WTE feet	TPH-G ppb	TPH-D ppb	Benzene ppb	Toluene ppb	Ethylbenzen ppb	Xylene ppb	Total BTEX ppb
17-Jun-92	9.48	21.38	32,000	<50	<50	1,000	1,200	7,900	10,100
15-Sep-92	11.46	19.40	20,000	480	78	270	280	300	928
8-Dec-92	10.82	20.04	11,000	1,200	20	59	170	710	959
16-Mar-93	6.07	24.79	430	<50	1.5	1.2	9.4	21.9	34
6-May-93	4.86	26.00	<50	<50	1.5	0.7	<0.5	0.57	2.8
7-Sep-93	9.46	21.40			39	12	27	47.4	125.4
30-Nov-93	11.15	19.71			41	86	7.6	29	163.6
9-Mar-94	6.75	24.11			<0.3	<0.3	1.2	4.5	5.7
27-Jun-94	9.07	21.79			160	130	1.6	12	23.8
13-Sep-94	11.15	19.71			300	340	3.4	3.2	12
30-Dec-94	7.02	23.84			610	3,300	0.6	<0.5	5.4
30-Mar-95	4.07	26.79			1,700	600	<0.5	<0.5	3.5
6-Jun-95	7.14	23.72			120	80	<0.5	<0.5	0.6
13-Sep-95	10.13	20.73			60	<50	<0.5	0.8	2.3
12-Dec-95	8.34	22.52			300	250	<0.5	<0.5	<0.5
20-Mar-96	4.55	26.31			<50	<50	<0.5	<0.5	<0.5
10-Sep-96	10.31	20.55			<50	810	<0.5	<0.5	1.9
19-Mar-97	6.07	24.79							2.4
15-Sep-97	10.30	20.56							
24-Mar-98	3.23	27.63							
28-Sep-98	10.31	20.55							
29-Mar-99	4.13	26.73			60	140	0.8	1.2	<0.5
17-Sep-99	10.53	20.33			70	<50	3.4	8.8	3.7
15-Mar-00	4.61	26.25							34.9
20-Sep-00	10.46	20.40							
27-Mar-01	8.65	22.21							
18-Sep-01	11.24	19.62							
29-Mar-02	5.83	25.03							
18-Jun-02	8.92	21.94							
17-Sep-02	10.89	19.97							
19-Dec-02	8.70	22.16							
11-Mar-03	5.42	25.85							
16-Jun-03	7.23	24.04							
23-Sep-03	10.47	20.80							
9-Dec-03	9.60	21.67							
22-Mar-04	5.92	25.35							
10-Jun-04	8.28	22.99							
27-Sep-04	10.74	20.53							
16-Dec-04	8.11	23.16							
30-Mar-05	6.59	24.68							
28-Jun-05	7.30	23.97							
15-Sep-05	9.98	21.29							
7-Dec-05	7.23	24.04							

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 30.67  
Resurveyed Feb. 5, 2003: 30.23

### Monitoring Well MW-3

Date	DTW feet	WTE feet	TPH-G ppb	TPH-D ppb	Benzene ppb	Toluene ppb	Ethylbenzen ppb	Xylene ppb	Total BTEX ppb
17-Jun-92	9.27	21.40	210,000	1,300	22,000	49,000	5,700	31,000	107,700
15-Sep-92	11.92	18.75			Free Product present: Sample not analyzed				
8-Dec-92	10.66	20.01	190,000	8,600	17,000	44,000	3,100	16,300	80,400
16-Mar-93	5.78	24.89	89,000	2,600	1,900	11,000	2,600	15,300	30,800
6-May-93	4.67	26.00	120,000	949	490	3,900	1,700	9,500	15,590
11-Aug-03	7.00	23.23			900	6,800	2,300	15,000	25,000
7-Sep-93	7.00	23.67			1,000	12,000	4,000	22,600	39,600
30-Nov-93	9.27	21.40			730	13,000	3,100	18,600	35,430
9-Mar-94	11.06	19.61			54	2,300	1,900	12,000	16,254
27-Jun-94	6.48	24.19	52,000	10,000	190	330	1,800	10,000	12,320
13-Sep-94	9.07	21.60	66,300	38,700	130	3,300	790	16,000	22,220
30-Dec-94	11.25	19.42	73,000	29,000	<50	120	1,000	12,000	13,120
30-Mar-95	6.71	23.96	110,000	180,000	44	2,900	2,200	17,000	22,144
6-Jun-95	4.26	26.41	24,000	310	<10	260	430	3,300	3,990
13-Sep-95	6.83	23.84	21,000	6,100	71	320	480	3,000	3,871
12-Dec-95	10.00	20.67	16,000	4,400	<10	100	230	3,300	3,630
20-Mar-96	7.91	22.76	28,000	4,800	<5.0	120	740	6,100	6,960
10-Sep-96	4.58	26.09	16,000	2,800	<5.0	10	200	1,900	2,110
19-Mar-97	10.14	20.53			<2.5	18	230	1,500	1,748
15-Sep-97	5.95	24.72	16,000	5,450	<2.5	3.0	190	1,700	1,893
24-Mar-98	10.22	20.45			<5.0	<5.0	190	1,400	1,590
28-Sep-98	3.74	26.93	11,000	6,500	2.6	5.8	62	570	640
29-Mar-99	10.28	20.39	15,000	13,000	<0.5	1.7	72	730	804
17-Sep-99	4.56	26.11	10,000	4,400	<0.5	1.5	17	110	129
15-Mar-00	10.33	20.34	6,500	2,400	1.9	2.6	11	100	116
20-Sep-00	4.59	26.08	4,400	2,700	<0.5	<0.5	1.8	36	38
27-Mar-01	10.26	20.41	1,600	2,500	4.9	1.5	1	8.2	16
18-Sep-01	8.37	22.30	4,500	6,500	<0.5	<0.5	0.8	38	39
29-Mar-02	11.02	19.65	460		<0.5	7.2	<0.5	<0.5	7.2
18-Jun-02	5.64	25.03	1,300	940	0.90	0.74	1.3	6.5	9.4
17-Sep-02	8.66	22.01	2,100	1,200	15	5.5	1.8	20.0	42.3
19-Dec-02	10.68	19.99	1,600	2,100	<0.5	<0.5	<0.5	13.0	13.0
11-Mar-03	8.57	21.66	160	16,000	<0.5	30.0	<0.5	<0.5	30.0
16-Jun-03	5.20	25.03	450	1,100	1.2	0.5	<0.5	2.5	4.2
23-Sep-03	7.04	23.19	6,100	3,500	17	6.8	4.4	24	52.2
9-Dec-03	10.27	19.96	2,200	1,000	2.8	1.1	0.7	2.8	7.4
22-Mar-04	9.22	21.01	1,430	195	2.9	8.4	6.3	40.0	57.6
10-Jun-04	5.72	24.51	1,060	<250	70.5	5.3	9.27	34.1	119.2
27-Sep-04	7.74	22.49	1,990	966	4.5	1.7	2.25	17.2	25.68
16-Dec-04	10.52	19.71	1,790	583	9.7	1.1	0.73	4.9	16.41
30-Mar-05	7.89	22.34	100		<0.500	<0.500	<0.500	<0.500	ND
28-Jun-05	7.11	23.12	180		0.80	<0.50	<0.50	<0.50	0.80
15-Sep-05	9.82	20.41	920		4.00	1.7	0.85	2.4	8.95
7-Dec-05	6.78	23.45	60		<0.50	<0.50	<0.50	<0.50	ND

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 30.33  
Resurveyed Feb. 5, 2003: 29.90

### **Monitoring Well MW-5**

Date	DTW feet	WTE feet	TPH-G ppb	TPH-D ppb	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Xylenes ppb	Total BTEX ppb
16-Mar-93	4.63	25.70	45,000	790	850	1,400	810	4,900	7,960
6-May-93	0.00	30.33			2,600	4,400	630	3,200	10,830
7-Sep-93	8.93	21.40			1,100	160	210	1,060	2,530
30-Nov-93	9.88	20.45			730	3,200	680	1,790	6,400
9-Mar-94	6.44	23.89			<0.3	<0.3	0.4	1.2	2
27-Jun-94	8.94	21.39	1,900	600	23	220	100	260	603
13-Sep-94	10.86	19.47	8,670	1,330	77	940	770	1,400	3,187
30-Dec-94	6.62	23.71	350	<90	<0.5	1.2	5.8	17	24
30-Mar-95	4.16	26.17	7,600	500	20	130	400	660	1,210
6-Jun-95	6.91	23.42	<50	<50	<0.5	<0.5	<0.5	0.7	1
13-Sep-95	9.89	20.44	190	<50	<0.5	1.7	9.7	13	24
12-Dec-95	7.84	22.49	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
20-Mar-96	4.30	26.03	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
10-Sep-96	10.06	20.27	870	250	<0.5	0.8	41	7.5	49
19-Mar-97	5.92	24.41							
15-Sep-97	10.10	20.23	1,400	620	4.2	1.5	15	2.9	28.6
24-Mar-98	3.46	26.87							
28-Sep-98	10.01	20.32	120	<50	<0.5	<0.5	<0.5	0.8	0.8
29-Mar-99	4.24	26.09							
17-Sep-99	10.27	20.06	1,200	320	<0.5	1.0	0.5	2.2	3.7
15-Mar-00	4.48	25.85							
20-Sep-00	10.19	20.14	420	<50	<0.5	<0.5	<0.5	<0.5	<0.5
27-Mar-01	8.34	21.99							
18-Sep-01	10.91	19.42	920	480	<0.5	0.57	<0.5	1.1	1.7
29-Mar-02	5.60	24.73	<50		<0.5	<0.5	<0.5	<0.5	<0.5
18-Jun-02									
17-Sep-02									
19-Dec-02									
11-Mar-03	5.24	24.66	<50	60	<0.5	<0.5	<0.5	<0.5	ND
16-Jun-03	7.02	22.88	<50	60	<0.5	<0.5	<0.5	<0.5	ND
23-Sep-03	10.19	19.71	610	240	0.77	<0.5	<0.5	0.56	1.33
9-Dec-03	9.24	20.66	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
22-Mar-04	5.75	24.15	<50	<50	<0.5	<0.5	<0.5	<1.0	ND
10-Jun-04	7.73	22.17	<50	<50	<0.5	<0.5	<0.5	<1.0	ND
27-Sep-04	10.44	19.46	<50	<50	<0.5	<0.5	<0.5	<1.0	ND
16-Dec-04	7.73	22.17	964	<50	4.54	<0.5	<0.5	<1.0	4.54
30-Mar-05	6.27	23.63	<50		<0.5	<0.5	<0.5	<0.5	ND
28-Jun-05	7.05	22.85	<50		<0.5	<0.5	<0.5	<0.5	ND
15-Sep-05	9.71	20.19	<50		<0.5	<0.5	<0.5	<0.5	ND
7-Dec-05	7.10	22.80	<50		<0.5	<0.5	<0.5	<0.5	ND

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 29.92  
Resurveyed Feb. 5, 2003: 29.51

### Monitoring Well MW-6

Date	DTW feet	WTE feet	TPH-G ppb	TPH-D ppb	Benzene ppb	Toluene ppb	Ethylbenzen ppb	Xylene ppb	Total BTEX ppb
6-May-93	5.45	24.47	4,100	320	640	75	39	371	1,125
7-Sep-93	9.72	20.20			2.6	<0.5	7.6	3.6	13.8
30-Nov-93	11.11	18.81			59	350	120	100	629
9-Mar-94	7.08	22.84			1.5	3.1	51	11	66.6
27-Jun-94	9.42	20.50	830	330	5.8	24	74	26	129.8
13-Sep-94	11.15	18.77	1,920	380	16	7.6	170	13	206.6
30-Dec-94	7.16	22.76	160	<60	<0.5	0.8	<0.5	1.5	2.3
30-Mar-95	4.97	24.95	2,200	220	<21	4.8	2.5	8.4	15.7
6-Jun-95	7.61	22.31	<50	<50	<0.5	0.7	<0.5	1.9	2.6
13-Sep-95	10.30	19.62	620	<50	3.7	0.7	19	1.5	24.9
12-Dec-95	8.46	21.46	700	70	<1.0	0.5	9.9	<0.5	10.4
20-Mar-96	5.31	24.61	1,600	220	<0.5	1.6	<0.5	34	35.6
10-Sep-96	10.43	19.49	590	290	<0.5	<0.5	17	0.7	17.7
19-Mar-97	6.60	23.32							
15-Sep-97	10.50	19.42	290	170	1.4	0.7	7.6	1.1	10.8
24-Mar-98	4.79	25.13							
28-Sep-98	10.53	19.39	580	<50	2.3	2.6	4	3.7	12.6
29-Mar-99	5.15	24.77							
17-Sep-99	10.57	19.35	90	<50	1.1	2.8	1.1	4.9	9.9
15-Mar-00	5.48	24.44							
20-Sep-00	10.49	19.43	220	<50	2.1	2.4	22	4.5	31.0
27-Mar-01	8.75	21.17							
18-Sep-01	11.10	18.82	540	480	<0.5	0.51	4.0	1.3	5.8
29-Mar-02	6.21	23.71	<50		<0.5	<0.5	<0.5	<0.5	<0.5
18-Jun-02	9.12	20.80	420	250	6.3	3.5	19	4.4	33.2
17-Sep-02	10.82	19.10	630	79	6.2	0.58	<0.5	1	7.8
19-Dec-02	8.81	21.11	800	230	<0.5	<0.5	0.9	1.1	2.0
11-Mar-03	5.94	23.57	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
16-Jun-03	7.57	21.94	400	80	<0.5	<0.5	<0.5	<0.5	<0.5
23-Sep-03	10.47	19.04	400	170	0.72	<0.5	<0.5	0.62	1.34
9-Dec-03	9.59	19.92	420	80	3.3	1.0	0.68	1.20	6.18
22-Mar-04	6.29	23.22	<50	<50	<0.5	<0.5	<0.5	<1.0	ND
10-Jun-04	8.20	21.31	115	70.9	0.769	<0.5	<0.5	<1.0	0.769
27-Sep-04	10.68	18.83	544	74.2	1.68	<0.5	<0.5	<1.0	1.68
16-Dec-04	8.07	21.44	<50	<50	<0.5	<0.5	<0.5	<1.0	ND
30-Mar-05	6.95	22.56	65		<0.5	<0.5	<0.5	<0.5	ND
28-Jun-05	7.60	21.91	880		5.5	0.97	1.2	1.2	8.87
15-Sep-05	10.00	19.51	420		1.7	0.53	0.79	0.97	3.99
7-Dec-05	7.38	22.13	<50		<0.5	<0.5	<0.5	<0.5	ND

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 30.43  
Resurveyed Feb. 5, 2003: 30.71

### Monitoring Well MW-7

Date	DTW feet	WTE feet	TPH-G ppb	TPH-D ppb	Benzene ppb	Toluene ppb	Ethylbenzen ppb	Xylene ppb	Total BTEX ppb
6-May-93	5.21	25.22	37,000	490	100	890	640	2,400	4,030.00
7-Sep-93	9.78	20.65			50	71	64	300	485.0
30-Nov-93	11.26	19.17			460	100	78	136	774.0
9-Mar-94	6.89	23.54			52	7.5	17	73	149.5
27-Jun-94	9.45	20.98	15,000	3,100	540	110	110	540	1,300.0
13-Sep-94	11.37	19.06	5,900	650	290	96	47	130	563.0
30-Dec-94	6.94	23.49	140	<130	<0.5	2.9	1.1	5.5	9.5
30-Mar-95	4.53	25.90	70	290	<0.5	<0.5	0.9	0.6	1.5
6-Jun-95	7.54	22.89	3,400	330	14	2.5	3.2	19	38.7
13-Sep-95	10.46	19.97	7,900	1,300	41	12	24	86	163.0
12-Dec-95	7.90	22.53	1,900	290	<1.0	<0.5	1.5	9.2	10.7
20-Mar-96	4.94	25.49	<50	100	<0.5	<0.5	<0.5	0.6	0.6
10-Sep-96	10.09	20.34	2,700	650	16	23	9.4	28	76.4
19-Mar-97	6.75	23.68			11	<0.5	0.7	3.2	14.9
15-Sep-97	10.97	19.46	3,800	1,200	750	8.3	3.9	13	775.2
24-Mar-98	4.37	26.06			<0.5	<0.5	<0.5	<0.5	ND
28-Sep-98	10.96	19.47	4,700	2,300	750	6.7	8.4	11	776.1
29-Mar-99	5.07	25.36	<50	<50	1.6	<0.5	<0.5	0.8	2.4
17-Sep-99	11.00	19.43	4,400	2,800	580	21	16	13	630.0
15-Mar-00	5.28	25.15	230	<50	27	1.4	0.53	2.5	31.4
20-Sep-00	10.88	19.55	2,800	1,600	12	4.8	28	9.7	54.5
27-Mar-01	8.97	21.46	1,700	530	11	0.8	34	1.9	47.7
18-Sep-01	11.52	18.91	550	480	4.7	1.0	10	1.6	17.3
29-Mar-02	6.36	24.07	<50		<0.5	<0.5	<0.5	<0.5	ND
18-Jun-02	9.35	21.08	1,900	<50	1.6	1.4	6.4	2.0	11.4
17-Sep-02	11.20	19.23	230	80	3.3	3.1	0.94	2.0	9.3
19-Dec-02	9.38	21.05	490	220	<0.5	<0.5	<0.5	<0.5	ND
11-Mar-03	6.60	24.11	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
16-Jun-03	8.28	22.43	93	80	0.93	<0.5	<0.5	<0.5	0.9
23-Sep-03	11.34	19.37	280	220	1.2	<0.5	<0.5	0.75	2.0
9-Dec-03	10.45	20.26	1,100	210	5.5	2.3	18	21	46.8
22-Mar-04	7.08	23.63	<50	67.1	<0.5	<0.5	<0.5	<1.0	ND
10-Jun-04	8.88	21.83	57.4	60.9	<0.5	<0.5	<0.5	<1.0	ND
27-Sep-04	11.48	19.23	142	170	0.877	<0.5	<0.5	<1.0	0.9
16-Dec-04	8.79	21.92	878	104	2.76	2.72	17.7	58.2	81.4
30-Mar-05	7.64	23.07	68		0.91	<0.5	<0.5	<0.5	0.9
28-Jun-05	8.25	22.46	240		2.2	<0.5	<0.5	<0.5	2.2
15-Sep-05	10.83	19.88	730		12	2.6	1.4	2.2	18.2
7-Dec-05	8.02	22.69	89		1.0	<0.5	<0.5	<0.5	1.0

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 29.93  
Resurveyed Feb. 5, 2003: 29.42

### Monitoring Well MW-8

Date	DTW	WTE	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylene	Total BTEX
16-Mar-93	5.55	24.38	72,000	790	1,300	12,000	3,100	17,600	34,000
6-May-93	0.00	29.93			6,200	33,000	2,600	15,000	56,800
7-Sep-93	9.88	20.05			3,700	36,000	3,300	19,300	62,300
30-Nov-93	11.15	18.78			6,900	10,000	1,100	5,700	23,700
9-Mar-94	7.11	22.82			1,500	7,600	760	4,300	14,160
27-Jun-94	9.53	20.40	120,000	3,500	3,900	27,000	3,100	12,000	46,000
13-Sep-94	11.25	18.68	118,000	1,960	5,900	20,000	1,600	9,200	36,700
30-Dec-94	7.12	22.81	77,000	2,200	1,000	12,000	2,600	12,000	27,600
30-Mar-95	4.75	25.18	2,300	590	40	140	32	150	362
6-Jun-95	7.77	22.16	29,000	3,200	70	1,400	1,300	6,500	9,270
13-Sep-95	10.44	19.49	75,000	5,200	2,000	7,400	2,700	13,000	25,100
12-Dec-95	8.49	21.44	66,000	5,300	1,700	4,700	2,500	13,000	21,900
20-Mar-96	5.01	24.92	640	90	11	54	20	120	205
10-Sep-96	10.56	19.37	48,000	3,200	640	1,900	2,400	13,000	17,940
19-Mar-97	6.74	23.19			78	210	710	3,500	4,498
15-Sep-97	10.63	19.30	52,000	9,450	3,800	640	2,300	9,800	16,540
24-Mar-98	4.24	25.69			1,900	640	720	1,900	5,160
28-Sep-98	10.70	19.23	46,000	21,000	15,000	630	2,000	5,400	23,030
29-Mar-99	5.18	24.75	2,100	140	120	18	24	95	257
17-Sep-99	10.72	19.21	43,000	9,400	18,000	570	790	3,600	22,960
15-Mar-00	5.15	24.78	12,000	1,500	2,800	890	530	1,100	5,320
20-Sep-00	10.62	19.31	39,000	15,000	5,800	2,800	1,400	2,500	12,500
27-Mar-01	8.82	21.11	43,000	9,900	5,600	5,500	1,200	2,700	15,000
18-Sep-01	11.15	18.78	32,000	8,900	3,200	4,100	1,100	2,300	10,700
29-Mar-02	6.36	23.57	2,100		240	280	66	160	746
18-Jun-02	9.20	20.73	44,000	7,700	1,900	4,400	940	2,400	9,640
17-Sep-02	10.90	19.03	25,000	1,100	1,600	3,900	810	2,500	8,810
19-Dec-02	8.92	21.01	12,000	2,200	540	270	580	910	2,300
11-Mar-03	6.09	23.33	2,200	880	60	17	12	25	114
16-Jun-03	7.74	21.68	11,000	7,800	860	700	410	1,000	2,970
23-Sep-03	10.58	18.84	48,000	21,000	1,800	5,400	1,400	4,800	13,400
9-Dec-03	9.60	19.82	17,000	5,000	500	620	680	1,700	3,500
22-Mar-04	6.59	22.83	734	389	38.9	64.8	33.9	111.0	248.6
10-Jun-04	8.28	21.14	21,300	2,690	822	2,620	950	3,040	7,432
27-Sep-04	10.72	18.70	36,600	3,260	1,070	1,300	1,640	5,570	9,580
16-Dec-04	8.08	21.34	23,600	2,500	578	555	1,250	4,340	6,723
30-Mar-05	7.10	22.32	310		1.2	2.8	9.2	27	40.2
28-Jun-05	7.81	21.61	1,600		33.0	18.0	39.0	88	178.0
15-Sep-05	10.05	19.37	900		5.0	2.5	18.0	41	66.5
7-Dec-05	7.34	22.08	<50		<0.50	<0.50	<0.50	<0.50	ND

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 29.47  
Resurveyed Feb. 5, 2003: 29.47

### Monitoring Well MW-10

Date	DTW	WTE	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylylene	Total BTEX
29-Mar-02	6.65	22.82	510		57	1.3	45.0	37.0	140
18-Jun-02	9.53	19.94	320	60	63	2.2	1.3	4.7	71
17-Sep-02	11.15	18.32	2,800	190	420	25	130	49	624
19-Dec-02	8.97	20.50	6,100	310	470	23	150	12	655
11-Mar-03	6.37	23.19	700	<50	20	1.4	<0.5	2.6	24.0
16-Jun-03	8.08	21.39	<50	50	0.61	<0.5	<0.5	0.71	1.32
23-Sep-03	10.87	18.60	14,000	3,800	1,600	60	690	250	2,600
9-Dec-03	9.65	19.82	4,400	480	530	25	180	58	793
22-Mar-04	6.95	22.52	105	65.3	2.32	<0.5	<0.5	<1.0	2.32
10-Jun-04	8.55	20.92	<50	<50	0.63	<0.5	<0.5	<1.0	0.63
27-Sep-04	11.02	18.45	3,190	662.0	134.0	20.1	137.0	84.9	376.0
16-Dec-04	8.15	21.32	11,400	1,070.0	222.0	96.2	1160.0	1320.0	2,798.20
30-Mar-05	7.50	21.97	250		2.5	4.0	12.0	13.0	31.50
28-Jun-05	8.09	21.38	<50		<0.50	<0.50	<0.50	<0.50	ND
15-Sep-05	10.44	19.03	85		1.4	<0.50	2.2	3.0	6.60
7-Dec-05	7.83	21.64	170		3.1	0.92	6.9	3.1	14.02

### Monitoring Well MW-11

Elevation: 29.87  
Resurveyed February 5, 2003: 29.87

Date	DTW	WTE	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylylene	Total BTEX
29-Mar-02	7.53	22.34	960		99	2.0	45	1.8	147.8
18-Jun-02	10.25	19.62	990	230	100	6.3	62	4.6	172.9
17-Sep-02	11.82	18.05	2,000	150	64	7.6	140	6.1	217.7
19-Dec-02	9.51	20.36	1,100	310	12	1.7	31	1.5	46.2
11-Mar-03	7.22	22.65	80	310	1.2	<0.5	<0.5	<0.5	1.2
16-Jun-03	8.91	20.96	860	310	34.0	0.6	9.3	0.7	44.6
23-Sep-03	11.52	18.35	820	450	36	0.50	24	0.79	61.29
9-Dec-03	10.29	19.58	1,100	240	15	0.63	30	1.20	46.83
22-Mar-04	7.73	22.14	952	296	23	2.25	19.3	2.23	46.78
10-Jun-04	9.35	20.52	767	296	21	1.49	11.5	1.54	35.53
27-Sep-04	11.64	18.23	1,200	332	29.3	0.89	2.5	2.14	34.79
16-Dec-04	8.96	20.91	1,520	161	35.5	1.68	8.3	2.88	48.35
30-Mar-05	8.11	21.76	890		7.8	0.98	24.0	6.30	39.08
28-Jun-05	8.82	21.05	370		5.4	<0.50	<0.50	0.95	6.35
15-Sep-05	11.04	18.83	81		1.3	<0.50	<0.50	<0.50	1.30
7-Dec-05	8.52	21.35							

### Monitoring Well MW-12

Elevation: 28.36  
Resurveyed February 5, 2003: 28.36

Date	DTW	WTE	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylylene	Total BTEX
29-Mar-02	6.66	21.70	310		130.0	>0.5	2.1	>0.5	132.1
18-Jun-02	9.29	19.07	170	60	66.0	<0.5	<0.5	<0.5	86.0
17-Sep-02	10.72	17.64	480	<50	85.0	0.92	7.2	0.66	93.8
19-Dec-02	7.82	20.54	60	<50	4.8	<0.5	1.0	0.70	6.5
11-Mar-03	6.21	22.15	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
16-Jun-03	8.04	20.32	<50	<50	4.8	<0.5	<0.5	<0.5	4.8
23-Sep-03	10.44	17.92	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
9-Dec-03	8.85	19.51	80	<50	7.0	<0.5	1.1	0.69	8.8
22-Mar-04	6.92	21.44	<50	<50	0.52	<0.5	<0.5	<0.5	0.52
10-Jun-04	8.40	19.96	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
27-Sep-04	10.48	17.88	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
16-Dec-04	7.75	20.61	<50	<50	0.87	<0.5	<0.5	<1.0	0.87
30-Mar-05	6.79	21.57	88		29	<0.5	<0.5	<0.5	29
28-Jun-05	7.89	20.47	<50						
15-Sep-05	9.97	18.39	<50						
7-Dec-05	7.33	21.03	<50		<0.5	<0.5	<0.5	<0.5	

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 26.67

### Monitoring Well MW-13

Date	DTW	WTE	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylenes	Total BTEX
11-Mar-03	5.34	21.33	<50	90	<0.5	<0.5	<0.5	<0.5	ND
16-Jun-03	7.16	19.51	<50	90	<0.5	<0.5	<0.5	<0.5	ND
23-Sep-03	9.39	17.28	<50	90	<0.5	<0.5	<0.5	<0.5	ND
9-Dec-03	6.70	19.97	<50	50	<0.5	<0.5	<0.5	<0.5	ND
22-Mar-04	5.95	20.72	<50	191	<0.5	<0.5	<0.5	<1.0	ND
10-Jun-04	7.58	19.09	<50	203	<0.5	<0.5	<0.5	<0.5	ND
27-Sep-04	9.45	17.22	<50	218	<0.5	<0.5	<0.5	<0.5	ND
16-Dec-04	5.71	20.96	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
30-Mar-05	4.66	22.01							
28-Jun-05	6.45	20.22							
15-Sep-05	8.98	17.69							
7-Dec-05	No measurement								

### Monitoring Well MW-14

Date	DTW	WTE	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylenes	Total BTEX
11-Mar-03	4.61	21.65	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
16-Jun-03	7.01	19.25	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
23-Sep-03	9.39	16.87	<50	130	<0.5	<0.5	<0.5	<0.5	ND
9-Dec-03	6.06	20.20	<50	60	<0.5	<0.5	<0.5	<0.5	ND
22-Mar-04	5.54	20.72	<50	835	<0.5	<0.5	<0.5	<1.0	ND
10-Jun-04	7.20	19.06	<50	129	<0.5	<0.5	<0.5	<1.0	ND
27-Sep-04	9.30	16.96	<50	1,230	<0.5	<0.5	<0.5	<1.0	ND
16-Dec-04	5.27	20.99	50.3	<50	<0.5	<0.5	<0.5	<1.0	ND
30-Mar-05	4.15	22.11							
28-Jun-05	6.59	19.67							
15-Sep-05	8.97	17.29							
7-Dec-05	4.76	21.50							

### Monitoring Well MW-15

Date	DTW	WTE	TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylenes	Total BTEX
11-Mar-03	5.44	21.48	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
16-Jun-03	7.47	19.45	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
23-Sep-03	9.61	17.31	1,200	150	220	2.1	1.9	3.0	227.0
9-Dec-03	7.63	19.29	810	90	36	<0.5	1.0	1.8	38.8
22-Mar-04	6.42	20.50	<50	<50	0.731	<0.5	<0.5	<1.0	0.731
10-Jun-04	7.80	19.12	408	163	82.9	0.943	0.936	<1.0	84.8
27-Sep-04	9.60	17.32	342	170	16.0	0.611	<0.5	2.1	18.7
16-Dec-04	6.71	20.21	<50	62.9	1.4	<0.5	<0.5	<1.0	1.4
30-Mar-05	5.63	21.29							
28-Jun-05	7.24	19.68							
15-Sep-05	9.16	17.76							
7-Dec-05	6.45	20.47							

Former Alliance Fast Mart  
1070 Highway 101 North  
Crescent City, California  
UGT No. 1TDN032

Units: BTEX, TPH-G, and TPH-D in ug/L (ppb)  
Depths, Elevations in feet  
Wellhead Elevation: 26.67

### Monitoring Well MW-16

Elevation: 29.80

Date	DTW	WTE
27-Sep-04	11.75	18.05
16-Dec-04	9.00	20.80
30-Mar-05	8.06	21.74
28-Jun-05	8.99	20.81
15-Sep-05	11.19	18.61
7-Dec-05	8.50	21.30

TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylene	Total BTEX
2,120	304	271	2.8	24.8	8.7	307.3
1,090	119	213	1.56	3.49	3.0	221.1
460		74	2.2	8.9	3.1	88.2
210		3.4	0.51	<0.50	<0.50	3.9
160		14.0	1.20	1.3	1.4	17.9
210		5.7	1.0	0.54	<0.50	7.2

### Monitoring Well MW-17

Elevation: 29.80

Date	DTW	WTE
27-Sep-04	11.37	18.43
16-Dec-04	8.38	21.42
30-Mar-05	7.55	22.25
28-Jun-05	8.52	21.28
15-Sep-05	10.83	18.97
7-Dec-05	7.99	21.81

TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylene	Total BTEX
2,650	291	5.88	4.78	13.00	4.09	27.8
2,310	201	6.45	7.93	2.82	3.48	20.7
740		4.9	1.3	4.0	2.8	13.0
1,600		11.0	3.0	2.5	3.2	19.7
850		5.0	1.9	1.3	2.1	10.3
2,000		12.0	2.0	0.5	6.4	20.9

### Recovery Well RW-1

Elevation: 27.86

Resurveyed February 5, 2003: 27.86

Date	DTW	WTE
29-Mar-02	6.57	21.29
18-Jun-02	9.29	18.57
17-Sep-02	10.46	17.40
19-Dec-02	7.46	20.40
11-Mar-03	6.10	21.76
16-Jun-03	7.92	19.94
23-Sep-03	10.22	17.64
9-Dec-03	8.62	19.24
22-Mar-04	6.86	21.00
10-Jun-04	8.30	19.56
27-Sep-04	10.25	17.61
16-Dec-04	7.56	20.30
30-Mar-05	6.58	21.28
28-Jun-05	7.55	20.31
15-Sep-05	9.76	18.10
7-Dec-05	7.19	20.67

TPH-G	TPH-D	Benzene	Toluene	Ethylbenzen	Xylene	Total BTEX
<50	<50	5.1	<0.5	<0.5	<0.5	5.1
<50	<50	0.51	<0.5	<0.5	0.75	1.3
<50	<50	<0.5	<0.5	<0.5	<0.5	ND
<50	<50	<0.5	<0.5	<0.5	<0.5	ND
<50	<50	6.6	<0.5	<0.5	0.62	7.2
370	70	5.8	<0.5	<0.5	<0.5	5.8
70	320	1.0	<0.5	0.54	0.78	2.32
<50	<50	<0.5	<0.5	<0.5	<1.0	ND
75.5	<50	4.21	<0.5	<0.5	<1.0	4.21
<50	<50	<0.5	<0.5	<0.5	<0.6	ND
<50	<50	<0.5	<0.5	<0.5	<1.0	ND
260		17.0	0.65	<0.5	<0.5	17.65
<50		<0.5	<0.5	<0.5	<0.5	ND

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## APPENDIX D

### Laboratory Reports and Chain-of-Custody Records



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FAX (916) 921-0100  
[www.sequoialabs.com](http://www.sequoialabs.com)

---

4 January, 2006

Chris B. Stine  
Bergeson Boese & Associates  
32986 Roberts Court  
Coburg, OR 97408

RE: OTT02  
Work Order: S512232

Enclosed are the results of analyses for samples received by the laboratory on 12/08/05 10:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Ron Chew".

Ron Chew  
Dept Manager / Client Services Representative

CA ELAP Certificate # I-2630



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Bergeson Boese & Associates  
32986 Roberts Court  
Coburg OR, 97408

Project:OTT02  
Project Number:n/a  
Project Manager:Chris B. Stine

S512232  
Reported:  
01/04/06 15:34

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
OTT02-MW-2	S512232-01	Water	12/07/05 13:20	12/08/05 10:20
OTT02-MW-3	S512232-02	Water	12/07/05 13:04	12/08/05 10:20
OTT02-MW-5	S512232-03	Water	12/07/05 13:32	12/08/05 10:20
OTT02-MW-6	S512232-04	Water	12/07/05 12:47	12/08/05 10:20
OTT02-MW-7	S512232-05	Water	12/07/05 12:23	12/08/05 10:20
OTT02-MW-8	S512232-06	Water	12/07/05 11:50	12/08/05 10:20
OTT02-MW-10	S512232-07	Water	12/07/05 11:26	12/08/05 10:20
OTT02-MW-11	S512232-08	Water	12/07/05 10:24	12/08/05 10:20
OTT02-MW-12	S512232-09	Water	12/07/05 09:35	12/08/05 10:20
OTT02-MW-14	S512232-10	Water	12/07/05 09:02	12/08/05 10:20
OTT02-MW-15	S512232-11	Water	12/07/05 09:22	12/08/05 10:20
OTT02-MW-16	S512232-12	Water	12/07/05 10:31	12/08/05 10:20
OTT02-MW-17	S512232-13	Water	12/07/05 11:01	12/08/05 10:20
OTT02-RW-1	S512232-14	Water	12/07/05 09:52	12/08/05 10:20



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Bergeson Boese & Associates  
32986 Roberts Court  
Coburg OR, 97408

Project:OTT02  
Project Number:n/a  
Project Manager:Chris B. Stine

S512232  
Reported:  
01/04/06 15:34

### Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-2 (S512232-01) Water   Sampled: 12/07/05 13:20   Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	5120186	12/12/05	12/12/05	EPA 8015B/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		111 %	60-140	"	"	"	"	"	
<i>Surrogate: a,a,a-TFT (PID)</i>		103 %	60-140	"	"	"	"	"	
<b>OTT02-MW-3 (S512232-02) Water   Sampled: 12/07/05 13:04   Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	60	50	ug/l	1	5120186	12/12/05	12/12/05	EPA 8015B/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		117 %	60-140	"	"	"	"	"	
<i>Surrogate: a,a,a-TFT (PID)</i>		102 %	60-140	"	"	"	"	"	
<b>OTT02-MW-5 (S512232-03) Water   Sampled: 12/07/05 13:32   Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		114 %	60-140	"	"	"	"	"	
<i>Surrogate: a,a,a-TFT (PID)</i>		109 %	60-140	"	"	"	"	"	

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32986 Roberts Court  
Coburg OR, 97408

Project:OTT02  
Project Number:n/a  
Project Manager:Chris B. Stine

S512232  
Reported:  
01/04/06 15:34

### Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-6 (S512232-04) Water    Sampled: 12/07/05 12:47    Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		116 %	60-140						
<i>Surrogate: a,a,a-TFT (PID)</i>		113 %	60-140						
<b>OTT02-MW-7 (S512232-05) Water    Sampled: 12/07/05 12:23    Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	89	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	
Benzene	1.0	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		128 %	60-140						
<i>Surrogate: a,a,a-TFT (PID)</i>		111 %	60-140						
<b>OTT02-MW-8 (S512232-06) Water    Sampled: 12/07/05 11:50    Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		116 %	60-140						
<i>Surrogate: a,a,a-TFT (PID)</i>		107 %	60-140						



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Project Manager:Chris B. Stine

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### Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-10 (S512232-07) Water</b> Sampled: 12/07/05 11:26 Received: 12/08/05 10:20									
Gasoline Range Organics (C4-C12)	170	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	
Benzene	3.1	0.50	"	"	"	"	"	"	
Toluene	0.92	0.50	"	"	"	"	"	"	
Ethylbenzene	6.9	0.50	"	"	"	"	"	"	
Xylenes (total)	3.1	0.50	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	149 %	60-140		"	"	"	"	"	S04
Surrogate: a,a,a-TFT (PID)	114 %	60-140		"	"	"	"	"	
<b>OTT02-MW-11 (S512232-08) Water</b> Sampled: 12/07/05 10:24 Received: 12/08/05 10:20									
Gasoline Range Organics (C4-C12)	81	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	
Benzene	1.3	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	130 %	60-140		"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)	110 %	60-140		"	"	"	"	"	
<b>OTT02-MW-12 (S512232-09) Water</b> Sampled: 12/07/05 09:35 Received: 12/08/05 10:20									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	116 %	60-140		"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)	107 %	60-140		"	"	"	"	"	

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Reported:  
01/04/06 15:34

### Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-14 (S512232-10) Water    Sampled: 12/07/05 09:02    Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	"
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		103 %	60-140	"	"	"	"	"	
<i>Surrogate: a,a,a-TFT (PID)</i>		111 %	60-140	"	"	"	"	"	
<b>OTT02-MW-15 (S512232-11) Water    Sampled: 12/07/05 09:22    Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	200	50	ug/l	1	5120186	12/13/05	12/13/05	EPA 8015B/8021B	"
Benzene	6.3	0.50	"	"	"	"	"	"	"
Toluene	0.56	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	0.74	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		155 %	60-140	"	"	"	"	"	S04
<i>Surrogate: a,a,a-TFT (PID)</i>		112 %	60-140	"	"	"	"	"	
<b>OTT02-MW-16 (S512232-12) Water    Sampled: 12/07/05 10:31    Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	210	50	ug/l	1	5120186	12/13/05	12/14/05	EPA 8015B/8021B	"
Benzene	5.7	0.50	"	"	"	"	"	"	"
Toluene	1.0	0.50	"	"	"	"	"	"	"
Ethylbenzene	0.54	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
<i>Surrogate: 4-BFB (FID)</i>		142 %	60-140	"	"	"	"	"	S04
<i>Surrogate: a,a,a-TFT (PID)</i>		112 %	60-140	"	"	"	"	"	

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01/04/06 15:34

### Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-17 (S512232-13) Water   Sampled: 12/07/05 11:01   Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	2000	50	ug/l	1	5120186	12/13/05	12/14/05	EPA 8015B/8021B	
Benzene	12	0.50	"	"	"	"	"	"	"
Toluene	2.0	0.50	"	"	"	"	"	"	"
Ethylbenzene	0.54	0.50	"	"	"	"	"	"	"
Xylenes (total)	6.4	0.50	"	"	"	"	"	"	"
Surrogate: 4-BFB (FID)		320 %	60-140		"	"	"	"	S04
Surrogate: a,a,a-TFT (PID)		202 %	60-140		"	"	"	"	S04
<b>OTT02-RW-1 (S512232-14) Water   Sampled: 12/07/05 09:52   Received: 12/08/05 10:20</b>									
Gasoline Range Organics (C4-C12)	ND	50	ug/l	1	5120186	12/13/05	12/14/05	EPA 8015B/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
Surrogate: 4-BFB (FID)		114 %	60-140		"	"	"	"	
Surrogate: a,a,a-TFT (PID)		102 %	60-140		"	"	"	"	



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Bergeson Boese & Associates  
32986 Roberts Court  
Coburg OR, 97408

Project:OTT02  
Project Number:n/a  
Project Manager:Chris B. Stine

\$512232  
Reported:  
01/04/06 15:34

### Total Metals by EPA 6000/7000 Series Methods

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-3 (S512232-02) Water    Sampled: 12/07/05 13:04    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-5 (S512232-03) Water    Sampled: 12/07/05 13:32    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-6 (S512232-04) Water    Sampled: 12/07/05 12:47    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-7 (S512232-05) Water    Sampled: 12/07/05 12:23    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-8 (S512232-06) Water    Sampled: 12/07/05 11:50    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	

Sequoia Analytical - Sacramento

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### Total Metals by EPA 6000/7000 Series Methods

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-10 (S512232-07) Water    Sampled: 12/07/05 11:26    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	HT-04
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-11 (S512232-08) Water    Sampled: 12/07/05 10:24    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	HT-04
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-15 (S512232-11) Water    Sampled: 12/07/05 09:22    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	HT-04
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-16 (S512232-12) Water    Sampled: 12/07/05 10:31    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	ND	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	HT-04
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	
<b>OTT02-MW-17 (S512232-13) Water    Sampled: 12/07/05 11:01    Received: 12/08/05 10:20</b>									
Hexavalent Chromium	0.050	0.0050	mg/l	1	5120389	12/08/05 11:30	12/08/05	EPA 7196A	HT-04
Molybdenum	ND	0.020	"	"	5120364	12/20/05	12/21/05	EPA 6010B	
Selenium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.020	"	"	"	"	"	"	

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**Anions by EPA Method 300.0**  
**Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>OTT02-MW-3 (S512232-02) Water    Sampled: 12/07/05 13:04    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-5 (S512232-03) Water    Sampled: 12/07/05 13:32    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-6 (S512232-04) Water    Sampled: 12/07/05 12:47    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-7 (S512232-05) Water    Sampled: 12/07/05 12:23    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-8 (S512232-06) Water    Sampled: 12/07/05 11:50    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-10 (S512232-07) Water    Sampled: 12/07/05 11:26    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-11 (S512232-08) Water    Sampled: 12/07/05 10:24    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-15 (S512232-11) Water    Sampled: 12/07/05 09:22    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	
<b>OTT02-MW-16 (S512232-12) Water    Sampled: 12/07/05 10:31    Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	

Sequoia Analytical - Sacramento

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### Anions by EPA Method 300.0

#### Sequoia Analytical - Sacramento

Analyte	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Result	Limit							
<b>OTT02-MW-17 (S512232-13) Water   Sampled: 12/07/05 11:01   Received: 12/08/05 10:20</b>									
Bromide	ND	1.0	mg/l	10	5120454	12/22/05	12/22/05	EPA 300.0	



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01/04/06 15:34

**Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B - Quality Control**  
**Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5120186 - EPA 5030B (P/T) / EPA 8015B/8021B**

Blank (5120186-BLK1)						
Prepared: 12/09/05 Analyzed: 12/12/05						
Gasoline Range Organics (C4-C12)	ND	50	ug/l			
Benzene	ND	0.50	"			
Toluene	ND	0.50	"			
Ethylbenzene	ND	0.50	"			
Xylenes (total)	ND	0.50	"			
Surrogate: 4-BFB (FID)	11.1	"	10.0		111	60-140
Surrogate: a,a,a-TFT (PID)	10.3	"	10.0		103	60-140

Blank (5120186-BLK2)						
Prepared: 12/12/05 Analyzed: 12/13/05						
Gasoline Range Organics (C4-C12)	ND	50	ug/l			
Benzene	ND	0.50	"			
Toluene	ND	0.50	"			
Ethylbenzene	ND	0.50	"			
Xylenes (total)	ND	0.50	"			
Surrogate: 4-BFB (FID)	11.1	"	10.0		111	60-140
Surrogate: a,a,a-TFT (PID)	10.5	"	10.0		105	60-140

Laboratory Control Sample (5120186-BS1)						
Prepared & Analyzed: 12/12/05						
Benzene	10.7	0.50	ug/l	10.0	107	70-130
Toluene	10.8	0.50	"	10.0	108	70-130
Ethylbenzene	10.9	0.50	"	10.0	109	70-130
Xylenes (total)	33.7	0.50	"	30.0	112	70-130
Surrogate: 4-BFB (FID)	11.8	"	10.0		118	60-140
Surrogate: a,a,a-TFT (PID)	10.4	"	10.0		104	60-140

Laboratory Control Sample (5120186-BS2)						
Prepared: 12/12/05 Analyzed: 12/13/05						
Benzene	10.4	0.50	ug/l	10.0	104	70-130
Toluene	10.5	0.50	"	10.0	105	70-130
Ethylbenzene	10.7	0.50	"	10.0	107	70-130
Xylenes (total)	32.7	0.50	"	30.0	109	70-130
Surrogate: 4-BFB (FID)	10.8	"	10.0		108	60-140
Surrogate: a,a,a-TFT (PID)	10.8	"	10.0		108	60-140

Sequoia Analytical - Sacramento

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**Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B - Quality Control**

**Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Batch 5120186 - EPA 5030B (P/T) / EPA 8015B/8021B</b>									
<b>Matrix Spike (5120186-MS1)</b> <b>Source: S512077-02</b> <b>Prepared &amp; Analyzed: 12/12/05</b>									
Benzene									
10.9      0.50      ug/l      10.0      0.311      106      60-140									
Toluene									
11.0      0.50      "      10.0      ND      110      60-140									
Ethylbenzene									
11.1      0.50      "      10.0      ND      111      60-140									
Xylenes (total)									
34.5      0.50      "      30.0      ND      115      60-140									
<i>Surrogate: 4-BFB (FID)</i>									
11.3      "      10.0      113      60-140									
<i>Surrogate: a,a,a-TFT (PID)</i>									
10.4      "      10.0      104      60-140									
<b>Matrix Spike Dup (5120186-MSD1)</b> <b>Source: S512077-02</b> <b>Prepared &amp; Analyzed: 12/12/05</b>									
Benzene									
10.9      0.50      ug/l      10.0      0.311      106      60-140      0      25									
Toluene									
11.0      0.50      "      10.0      ND      110      60-140      0      25									
Ethylbenzene									
11.1      0.50      "      10.0      ND      111      60-140      0      25									
Xylenes (total)									
34.5      0.50      "      30.0      ND      115      60-140      0      25									
<i>Surrogate: 4-BFB (FID)</i>									
10.7      "      10.0      107      60-140									
<i>Surrogate: a,a,a-TFT (PID)</i>									
9.81      "      10.0      98      60-140									



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S512232  
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01/04/06 15:34

### Total Metals by EPA 6000/7000 Series Methods - Quality Control

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 5120364 - EPA 3010A / EPA 6010B</b>										
<b>Blank (5120364-BLK1)</b> Prepared & Analyzed: 12/20/05										
Vanadium ND 0.020 mg/l										
Selenium ND 0.10 "										
Molybdenum ND 0.020 "										
<b>Blank (5120364-BLK2)</b> Prepared: 12/20/05 Analyzed: 12/21/05										
Selenium ND 0.10 mg/l										
Molybdenum ND 0.020 "										
Vanadium ND 0.020 "										
<b>Laboratory Control Sample (5120364-BS1)</b> Prepared & Analyzed: 12/20/05										
Vanadium 0.910 0.020 mg/l 1.00 91 80-120										
Selenium 0.912 0.10 " 1.00 91 80-120										
Molybdenum 0.930 0.020 " 1.00 93 80-120										
<b>Matrix Spike (5120364-MS1)</b> Source: S512309-01 Prepared & Analyzed: 12/20/05										
Vanadium 0.915 0.020 mg/l 1.00 0.00950 91 75-125										
Selenium 0.907 0.10 " 1.00 ND 91 75-125										
Molybdenum 0.920 0.020 " 1.00 ND 92 75-125										
<b>Matrix Spike Dup (5120364-MSD1)</b> Source: S512309-01 Prepared & Analyzed: 12/20/05										
Molybdenum 0.933 0.020 mg/l 1.00 ND 93 75-125 1 20										
Vanadium 0.920 0.020 " 1.00 0.00950 91 75-125 0.5 20										
Selenium 0.922 0.10 " 1.00 ND 92 75-125 2 20										
<b>Batch 5120389 - General Preparation / EPA 7196A</b>										
<b>Blank (5120389-BLK1)</b> Prepared & Analyzed: 12/08/05										
Hexavalent Chromium ND 0.0050 mg/l										

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### Total Metals by EPA 6000/7000 Series Methods - Quality Control

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 5120389 - General Preparation / EPA 7196A

Laboratory Control Sample (5120389-BS1)					Prepared & Analyzed: 12/08/05					
Hexavalent Chromium	0.0500	0.0050	mg/l	0.0500		100	85-115			
Matrix Spike (5120389-MS1)	Source: S512232-02				Prepared & Analyzed: 12/08/05					
Hexavalent Chromium	0.0466	0.0050	mg/l	0.0500	ND	93	85-115			
Matrix Spike Dup (5120389-MSD1)	Source: S512232-02				Prepared & Analyzed: 12/08/05					
Hexavalent Chromium	0.0478	0.0050	mg/l	0.0500	ND	96	85-115	3	20	

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**Anions by EPA Method 300.0 - Quality Control**  
**Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5120454 - General Preparation / EPA 300.0**

<b>Blank (5120454-BLK1)</b>					Prepared & Analyzed: 12/22/05					
Bromide	ND	0.10	mg/l							
<b>Laboratory Control Sample (5120454-BS1)</b>										
Bromide	5.66	0.10	mg/l	5.00		113	90-110			QL06
<b>Matrix Spike (5120454-MS1)</b>										
Bromide	48.3	1.0	mg/l	50.0	ND	97	80-120			
<b>Matrix Spike (5120454-MS2)</b>										
Bromide	48.3	1.0	mg/l	50.0	ND	97	80-120			



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#### Notes and Definitions

- S04 The surrogate recovery for this sample is above control limits due to interference from the sample matrix.
- QL06 Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
- HT-04 This sample was analyzed beyond the EPA recommended holding time.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

12/23/2005

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834



Dear Ron Chew,

Thank you for selecting BSK Analytical Laboratories for your analytical testing needs. We have prepared this report in response to your request for analytical services. Please find enclosed the following sections for your complete laboratory report, each uniquely paginated:

CASE NARRATIVE: An overview of the work performed.

CERTIFICATE OF ANALYSIS: Analytical results.

QUALITY CONTROL (QC) SUMMARY: QC supporting the results presented herein.

REPORT OF SAMPLE INTEGRITY

CHAIN OF CUSTODY FORM

**Certification:** I certify that this data package is in compliance with NELAC Standards for applicable analyses under NELAP Certificate #04227CA, and is in compliance with ELAP Standards for applicable certified analyses under ELAP Certificate #1180, except for the conditions listed.

If additional clarification of any information is required, please contact your Client Services Representative, Debra Skelton, at (800) 877-8310 or (559) 497-2888.

BSK ANALYTICAL LABORATORIES

---

Debra Skelton  
Client Services Representative

---

Cynthia Hamilton  
Quality Assurance Specialist



## Case Narrative

BSK Submission Number: 2005120931

### SAMPLE AND RECEIPT INFORMATION

The sample(s) was received, prepared, and analyzed within the method specified holding times unless otherwise noted on the Certificate of Analysis. Samples, when shipped, arrived within acceptable temperature requirements of 0° to 6° Celsius unless otherwise noted on the Report of Sample Integrity. Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.

### QUALITY CONTROL

All analytical quality controls are within established method criteria except when noted in the Quality Control section or on the Certificate of Analysis. All positive results for EPA Methods 504.1, 502.2, and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed. OC samples may include analytes not requested in this submission.

<u>RUN</u>	<u>ORDER</u>	<u>TEST</u>	<u>ANALYTE</u>	<u>COMMENT</u>
105234	672799	EPA 300.1	Bromate (BrO <sub>3</sub> )	MS recovery was affected by the matrix.
105236	672787	EPA 300.1	Bromate (BrO <sub>3</sub> )	MSD recovery was affected by the matrix.

### SAMPLE RESULT INFORMATION

Samples are analyzed as received (wet weight basis) unless noted here. The results relate only to the items tested. Any exceptions to be considered when evaluating these results are also listed here, if applicable. Results contained in this package shall not be reproduced, except in full, without written approval of BSK Analytical Laboratories.

ORDER    TEST              ANALYTE              COMMENT



# BSK ANALYTICAL LABORATORIES

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

BSK Submission #: 2005120931

BSK Sample ID #: 669108

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-02

Sample Comments:



Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1304

Date Received: 12/13/2005

## Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO3)	EPA 300.1	ND	mg/L	0.005	1	0.005	12/18/05	12/18/05

mg/L: Milligrams/Liter (ppm)

mg/Kg: Milligrams/Kilogram (ppm)

µg/L: Micrograms/Liter (ppb)

µg/Kg: Micrograms/Kilogram (ppb)

%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit

DLR: Detection Limit for Reporting

: PQL x Dilution

ND: None Detected at DLR

pCi/L: Picocurie per Liter

H: Analyzed outside of hold time

P: Preliminary result

S: Suspect result. See Case Narrative for comments.

E: Analysis performed by External laboratory.

See External Laboratory Report attachments.

Report Authentication Code:



Page 1 of 10

# BSK ANALYTICAL LABORATORIES

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

BSK Submission #: 2005120931

BSK Sample ID #: 669109

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-03

Sample Comments:



## Certificate of Analysis

NELAP Certificate #04227CA

ELAP Certificate #1180

Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1332

Date Received: 12/13/2005

### Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO <sub>3</sub> )	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)  
mg/Kg: Milligrams/Kilogram (ppm)  
μg/L: Micrograms/Liter (ppb)  
μg/Kg: Micrograms/Kilogram (ppb)  
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit  
DLR: Detection Limit for Reporting  
: PQL x Dilution  
ND: None Detected at DLR  
pCi/L: Picocurie per Liter

H: Analyzed outside of hold time  
P: Preliminary result  
S: Suspect result. See Case Narrative for comments.  
E: Analysis performed by External laboratory.  
See External Laboratory Report attachments.

Report Authentication Code:



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# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

BSK Submission #: 2005120931

BSK Sample ID #: 669110

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-04

Sample Comments:



Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1247

Date Received: 12/13/2005

## **Inorganics**

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO3)	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)  
mg/Kg: Milligrams/Kilogram (ppm)  
μg/L: Micrograms/Liter (ppb)  
μg/Kg: Micrograms/Kilogram (ppb)  
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit  
DLR: Detection Limit for Reporting  
: PQL x Dilution  
ND: None Detected at DLR  
pCi/L: Picocurie per Liter

H: Analyzed outside of hold time  
P: Preliminary result  
S: Suspect result. See Case Narrative for comments.  
E: Analysis performed by External laboratory.  
See External Laboratory Report attachments.

Report Authentication Code:



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# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

**BSK Submission #: 2005120931**

**BSK Sample ID #: 669111**

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-05

Sample Comments:



Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1223

Date Received: 12/13/2005

## **Inorganics**

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO3)	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)  
mg/Kg: Milligrams/Kilogram (ppm)  
μg/L: Micrograms/Liter (ppb)  
μg/Kg: Micrograms/Kilogram (ppb)  
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit  
DLR: Detection Limit for Reporting  
: PQL x Dilution  
ND: None Detected at DLR  
pCi/L: Picocurie per Liter

H: Analyzed outside of hold time  
P: Preliminary result  
S: Suspect result. See Case Narrative for comments.  
E: Analysis performed by External laboratory.  
See External Laboratory Report attachments.

Report Authentication Code:



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# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

**BSK Submission #:** 2005120931

**BSK Sample ID #:** 669112

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-06

Sample Comments:



## **Certificate of Analysis**

NELAP Certificate #04227CA

ELAP Certificate #1180

Report Issue Date: 12/23/2005

### **Inorganics**

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO3)	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)  
mg/Kg: Milligrams/Kilogram (ppm)  
µg/L: Micrograms/Liter (ppb)  
µg/Kg: Micrograms/Kilogram (ppb)  
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit  
DLR: Detection Limit for Reporting : PQL x Dilution  
ND: None Detected at DLR  
pCi/L: Picocurie per Liter

H: Analyzed outside of hold time  
P: Preliminary result  
S: Suspect result. See Case Narrative for comments.  
E: Analysis performed by External laboratory.  
See External Laboratory Report attachments.

Report Authentication Code:



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# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

BSK Submission #: 2005120931

BSK Sample ID #: 669113

Project ID: Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-07

Sample Comments:

## **Certificate of Analysis**

NELAP Certificate #04227CA

ELAP Certificate #1180



Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1126

Date Received: 12/13/2005

### **Inorganics**

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO <sub>3</sub> )	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)

mg/Kg: Milligrams/Kilogram (ppm)

µg/L: Micrograms/Liter (ppb)

µg/Kg: Micrograms/Kilogram (ppb)

%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit

DLR: Detection Limit for Reporting  
: PQL x Dilution

ND: None Detected at DLR

pCi/L: Picocurie per Liter

H: Analyzed outside of hold time

P: Preliminary result

S: Suspect result. See Case Narrative for comments.

E: Analysis performed by External laboratory.  
See External Laboratory Report attachments.

Report Authentication Code:



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# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

BSK Submission #: 2005120931

BSK Sample ID #: 669114

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-08

Sample Comments:



Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1024

Date Received: 12/13/2005

## Inorganics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO3)	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)

mg/Kg: Milligrams/Kilogram (ppm)

µg/L: Micrograms/Liter (ppb)

µg/Kg: Micrograms/Kilogram (ppb)

%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit

DLR: Detection Limit for Reporting

: PQL x Dilution

ND: None Detected at DLR

pCi/L: Picocurie per Liter

H: Analyzed outside of hold time

P: Preliminary result

S: Suspect result. See Case Narrative for comments.

E: Analysis performed by External laboratory.

See External Laboratory Report attachments.

Report Authentication Code:



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# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

**Certificate of Analysis**  
**NELAP Certificate #04227CA**  
**ELAP Certificate #1180**



**BSK Sample ID #: 669115**

Project ID:

Project Desc:

Report Issue Date: 12/23/2005

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-11

Sample Comments:

Date Sampled: 12/07/2005

Time Sampled: 0922

Date Received: 12/13/2005

## **Inorganics**

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO3)	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

**BSK Submission #:** 2005120931

**BSK Sample ID #:** 669116

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-12

Sample Comments:



Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1031

Date Received: 12/13/2005

## **Inorganics**

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO3)	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)  
mg/Kg: Milligrams/Kilogram (ppm)  
μg/L: Micrograms/Liter (ppb)  
μg/Kg: Micrograms/Kilogram (ppb)  
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit  
DLR: Detection Limit for Reporting  
: PQL x Dilution  
ND: None Detected at DLR  
pCi/L: Picocurie per Liter

H: Analyzed outside of hold time  
P: Preliminary result  
S: Suspect result. See Case Narrative for comments.  
E: Analysis performed by External laboratory.  
See External Laboratory Report attachments.

Report Authentication Code:



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# **BSK ANALYTICAL LABORATORIES**

Ron Chew  
Sequoia Analytical Laboratories Sacramento  
819 Striker Avenue Suite 8  
Sacramento, CA 95834

**BSK Submission #: 2005120931**

**BSK Sample ID #: 669117**

Project ID:

Project Desc:

Submission Comments:

Sample Type: Liquid

Sample Description: S512232-13

Sample Comments:



**Certificate of Analysis**  
**NELAP Certificate #04227CA**  
**ELAP Certificate #1180**

Report Issue Date: 12/23/2005

Date Sampled: 12/07/2005

Time Sampled: 1101

Date Received: 12/13/2005

## **Inorganics**

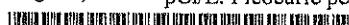
Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
Bromate (BrO <sub>3</sub> )	EPA 300.1	ND	mg/L	0.005	1	0.005	12/19/05	12/19/05

mg/L: Milligrams/Liter (ppm)  
mg/Kg: Milligrams/Kilogram (ppm)  
μg/L: Micrograms/Liter (ppb)  
μg/Kg: Micrograms/Kilogram (ppb)  
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit  
DLR: Detection Limit for Reporting  
: PQL x Dilution  
ND: None Detected at DLR  
pCi/L: Picocurie per Liter

H: Analyzed outside of hold time  
P: Preliminary result  
S: Suspect result. See Case Narrative for comments.  
E: Analysis performed by External laboratory.  
See External Laboratory Report attachments.

Report Authentication Code:



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# BSK ANALYTICAL LABORATORIES



QC Summary Report

12/23/2005

BSK Submission : 2005120931  
 Client : Sequoia Analytical Laboratories  
 Date Submitted : 12/13/2005  
 Project ID :

NELAP Certificate #04227CA  
 ELAP Certificate #1180

Project Desc :

BSK StarLims Run #: 104976

Analyst Initials: KASANNAP

Analyte	Matrix	Method Number: 317_CONFIRM										
		QC Type	Spike ID	Result	Units	% Rec or RPD	Spike RPD	Spk Conc	Matrix Conc	UCL	LCL	Date
Bromate (BrO3)	LCS	N/A	0.019	mg/L	95		0.02	ND	115	85	12/14/05	Acceptable
Bromate (BrO3)	LCSD	N/A	0.019	mg/L	95	0.0	0.02	ND	115	85	12/14/05	Acceptable
Bromate (BrO3)	MS	668003	0.024	mg/L	109		0.02	ND	125	75	12/14/05	Acceptable
	MS	669108	0.021	mg/L	105		0.02	ND	125	75	12/14/05	Acceptable
Bromate (BrO3)	MSD	668003	0.024	mg/L	109	0.0	0.02	ND	125	75	12/14/05	Acceptable
	MSD	669108	0.021	mg/L	105	0.0	0.02	ND	125	75	12/14/05	Acceptable
Bromate (BrO3)	RBLK	N/A	0	mg/L	< 0.005				0.005	N/A	12/14/05	Acceptable

StarLims Run 104976 includes the following BSK Sample ID#:

665871 666040 666165 666579 666580 667541 667575 667966 668000 668001 668002 668003 668577 669108 669109 669110  
 669111 669112 671433 671434 671435 671436 671437 671438 671439

BSK StarLims Run #: 104977

Analyst Initials: KASANNAP

Analyte	Matrix	Method Number: 317_CONFIRM										
		QC Type	Spike ID	Result	Units	% Rec or RPD	Spike RPD	Spk Conc	Matrix Conc	UCL	LCL	Date
Bromate (BrO3)	LCS	N/A	0.021	mg/L	105		0.02	ND	115	85	12/14/05	Acceptable
Bromate (BrO3)	LCSD	N/A	0.021	mg/L	105	0.0	0.020	ND	115	85	12/14/05	Acceptable
Bromate (BrO3)	MS	669113	0.02	mg/L	100		0.02	ND	125	75	12/14/05	Acceptable
Bromate (BrO3)	MSD	669113	0.02	mg/L	100	0.0	0.02	ND	125	75	12/14/05	Acceptable
Bromate (BrO3)	RBLK	N/A	0	mg/L	< 0.005				0.005	N/A	12/14/05	Acceptable

StarLims Run 104977 includes the following BSK Sample ID#:

669113 669114 669115 669116 669117 669126 669127 669128 669161 671440 671441 671442 671443 671444

BSK StarLims Run #: 105234

Analyst Initials: KASANNAP

Analyte	Matrix	Method Number: BRO3_IC										
		QC Type	Spike ID	Result	Units	% Rec or RPD	Spike RPD	Spk Conc	Matrix Conc	UCL	LCL	Date
Bromate (BrO3)	LCS	N/A	0.037	mg/L	105		0.035	ND	125	75	12/18/05	Acceptable
Bromate (BrO3)	LCSD	N/A	0.03	mg/L	85	20	0.035	ND	125	75	12/18/05	Acceptable
Bromate (BrO3)	MS	668003	0.014	mg/L	70		0.02	ND	125	75	12/19/05	OOS-Low
Bromate (BrO3)	MSD	668003	0.017	mg/L	85	19	0.02	ND	125	75	12/19/05	Acceptable

%Rec: Percent Recovered

RPD: Relative Percent Difference

UCL: Upper Control Limit

LCL: Lower Control Limit

LCS: Laboratory Control Sample

LCSD: Laboratory Control Sample Duplicate

LDUP: Laboratory Sample Duplicate

Parent Sample: Sample used as background matrix for MS/MSD

OOS-High: QC Result Above UCL

OOS-Low: QC Result Below LCL

MS: Matrix Spike

MSD: Matrix Spike Duplicate

RBLK: Reagent (Method) Blank

Page 1 of 2

Surrogate results for QC standards are not evaluated for acceptability (due to definition of a surrogate standard)

# BSK ANALYTICAL LABORATORIES



QC Summary Report

12/23/2005

BSK Submission : 2005120931  
 Client : Sequoia Analytical Laboratories  
 Date Submitted : 12/13/2005  
 Project ID :

NELAP Certificate #04227CA  
 ELAP Certificate #1180

Project Desc :

BSK StarLims Run #: 105234



Analyst Initials: KASANNAP

Analyte	QC Type	Matrix Spike ID	Result	Units	Method Number: BRO3_IC			UCL	LCL	Date
					% Rec or RPD	Spike RPD	Spk Conc			
Bromate (BrO3)	RBLK	N/A	0	mg/L	< 0.005			0.005	N/A	12/18/05 Acceptable

<u>Run</u>	<u>Test</u>	<u>Analyte</u>	<u>Comment</u>
105234	BRO3_IC	Bromate	MS recovery was affected by the matrix.

StarLims Run 105234 includes the following BSK Sample ID#:

668003 669108 669109 669110 672788 672789 672790 672791 672792 672799 672800

BSK StarLims Run #: 105236



Analyst Initials: KASANNAP

Analyte	QC Type	Matrix Spike ID	Result	Units	Method Number: BRO3_IC			UCL	LCL	Date
					% Rec or RPD	Spike RPD	Spk Conc			
Bromate (BrO3)	LCS	N/A	0.034	mg/L	97		0.035	ND	125	75 12/19/05 Acceptable
Bromate (BrO3)	LCSD	N/A	0.030	mg/L	85	12	0.035	ND	125	75 12/19/05 Acceptable
Bromate (BrO3)	MS	669111	0.023	mg/L	114		0.02	ND	125	75 12/19/05 Acceptable
Bromate (BrO3)	MSD	669111	0.012	mg/L	60	62	0.02	ND	125	75 12/19/05 OOS-Low
Bromate (BrO3)	RBLK	N/A	0	mg/L	< 0.005			0.005	N/A	12/19/05 Acceptable

<u>Run</u>	<u>Test</u>	<u>Analyte</u>	<u>Comment</u>
105236	BRO3_IC	Bromate	MSD recovery was affected by the matrix.

StarLims Run 105236 includes the following BSK Sample ID#:

669111 669112 669113 669114 669115 669116 669117 672783 672784 672785 672786 672787

Approved by:

Cynthia Hamilton

%Rec: Percent Recovered

RPD: Relative Percent Difference

UCL: Upper Control Limit

LCL: Lower Control Limit

LCS: Laboratory Control Sample

LCSD: Laboratory Control Sample Duplicate

LDUP: Laboratory Sample Duplicate

Parent Sample: Sample used as background matrix for MS/MSD

OOS-High: QC Result Above UCL

OOS-Low: QC Result Below LCL

MS: Matrix Spike

MSD: Matrix Spike Duplicate

RBLK: Reagent (Method) Blank

Page 2 of 2

Surrogate results for QC standards are not evaluated for acceptability (due to definition of a surrogate standard)

SUBCONTRACT ORDER  
Sequoia Analytical - Sacramento  
S512232

2005120931  
SEQLABS SA  
1213022

12/13/2005 13PM  
TAT: Standard

(SB)

SENDING LABORATORY:

Sequoia Analytical - Sacramento  
819 Striker Avenue, Ste. 8  
Sacramento, CA 95834  
Phone: (916) 921-9600  
Fax: (916) 921-0100  
Project Manager: Ron Chew  
Sending lab received date: 12/08/05 10:20

RECEIVING LABORATORY:

BSK Analytical Laboratories - Fresno  
1414 Stanislaus Street  
Fresno, CA 93706  
Phone: (800) 877-8310  
Fax: (559) 485-6935

- Drinking Water  
 Waste Water  
 Other

Please use standard TAT unless specific due date is requested -> Due date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	SLD Date	Expires	Laboratory ID	Comments
Sample ID: S512232-02 (Water sampled on 12/07/05 13:04)				1009/08
Bromate SUB	12/22/05 12:00	01/04/06 13:04	BSK	
<i>Containers Supplied:</i>				
250 ml Poly - Unpres (B) ✓				
Sample ID: S512232-03 (Water sampled on 12/07/05 13:32)				09
Bromate SUB	12/22/05 12:00	01/04/06 13:32	BSK	
<i>Containers Supplied:</i>				
250 ml Poly - Unpres (B) ✓				
Sample ID: S512232-04 (Water sampled on 12/07/05 12:47)				10
Bromate SUB	12/22/05 12:00	01/04/06 12:47	BSK	
<i>Containers Supplied:</i>				
250 ml Poly - Unpres (B) ✓				
Sample ID: S512232-05 (Water sampled on 12/07/05 12:23)				11
Bromate SUB	12/22/05 12:00	01/04/06 12:23	BSK	
<i>Containers Supplied:</i>				
250 ml Poly - Unpres (B) ✓				
Sample ID: S512232-06 (Water sampled on 12/07/05 11:50)				12
Bromate SUB	12/22/05 12:00	01/04/06 11:50	BSK	
<i>Containers Supplied:</i>				
250 ml Poly - Unpres (B) ✓				

Released By

Date

Time

Received By

Date

Time

Released By

Date

Time

Received By

Date

Time

SUBCONTRACT ORDER  
 Sequoia Analytical - Sacramento  
 S512232

2005120931 12/13/2005  
 SEQLABS SA TAT: Standard  
 1213022



Analysis	SLD Date	Expires	Laboratory ID	Comments
Sample ID: S512232-07 (Water sampled on 12/07/05 11:26)				106913
Bromate SUB	12/22/05 12:00	01/04/06 11:26	BSK	
Containers Supplied:				
250 ml Poly - Unpres (B)				
Sample ID: S512232-08 (Water sampled on 12/07/05 10:24)				14
Bromate SUB	12/22/05 12:00	01/04/06 10:24	BSK	
Containers Supplied:				
250 ml Poly - Unpres (B)				
Sample ID: S512232-11 (Water sampled on 12/07/05 09:22)				15
Bromate SUB	12/22/05 12:00	01/04/06 09:22	BSK	
Containers Supplied:				
250 ml Poly - Unpres (B)				
Sample ID: S512232-12 (Water sampled on 12/07/05 10:31)				16
Bromate SUB	12/22/05 12:00	01/04/06 10:31	BSK	
Containers Supplied:				
250 ml Poly - Unpres (B)				
Sample ID: S512232-13 (Water sampled on 12/07/05 11:01)				17
Bromate SUB	12/22/05 12:00	01/04/06 11:01	BSK	
Containers Supplied:				
250 ml Poly - Unpres (B)				

Released By

Date 12/9/05 Time 12:45

Received By

Date 12/10/05 Time

Released By

Date

Time

Received By

Date

Time



**SEQUOIA ANALYTICAL**

CHAIN OF CUSTODY

885 Jarvis Drive • Morgan Hill, CA 95037 • (408) 776-9600 • FAX (408) 782-6308  
 1455 N. McDowell Blvd., Suite D. • Petaluma, CA 94954 • (707) 792-1865 • FAX (707) 792-0342  
 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 • FAX (916) 921-0100  
 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 • FAX (925) 988-9673

Company Name:

*Bergeson Boese & Associates*

Project:

*OTTER ALUMINUM*

Mailing Address:

*32984 Roberts Cr.*

Billing Address (if different):

City:

*ROBURN*

State:  OR Zip Code: *97408*

Telephone:

*541.484.9484*

Fax #: *521.484.9488*

Report To:

*Office's Srtle*

E-mail Address: *rbstine@bergeson.com*

Sampler:

*Steve Stine*

Date / Time Results Required:

Turnaround

10-15 Working Days

(Standard TAT)

7 Working Days

24 Hours

5 Working Days

28 Hours

MANDATORY:

SDWA (Drinking Water)

CWA (Waste Water)

RCRA (Hazardous Waste)

Other

ANALYSES REQUESTED (Please provide method)

*MPN-G  
MPX  
MPY-1  
CL lot  
Pb  
Pb wide  
Pb narrow*

*Total  
Metals*

*Ce. 20*

*Comments/  
Temp. (if required)*

Client Sample I.D.	Date / Time Sampled	Matrix Desc.	# of Cont.	Container Type	Sequoia's Sample #	-01	-02	-03	-04	-05	-06	-07	-08	-09	-
1. OTT02-Mw-2	12-1105/12/00	W	3		S51223-2	X	X	X	X	X					
2. OTT02-Mw-3	12-1104/12/00	W	7			-01	X	X	X	X	X	X	X	X	
3. OTT02-Mw-5	12-1102/12/00	W	7			-02	X	X	X	X	X	X	X	X	
4. OTT02-Mw-6	12-1107/12/00	W	7			-03	X	X	X	X	X	X	X	X	
5. OTT02-Mw-7	12-1103/12/00	W	7			-04	X	X	X	X	X	X	X	X	
6. OTT02-Mw-8	12-1100/12/00	W	7			-05	X	X	X	X	X	X	X	X	
7. OTT02-Mw-9	12-1102/12/00	W	7			-06	X	X	X	X	X	X	X	X	
8. OTT02-Mw-11	12-1104/12/00	W	7			-07	X	X	X	X	X	X	X	X	
9. OTT02-Mw-12	12-1103/12/00	W	3			-08	X	X	X	X	X	X	X	X	
10. OTT02-Mw-13	12-1103/12/00	W	3			-09	X	X	X	X	X	X	X	X	

Relinquished by / Co.: *Office's Srtle*

Received by / Co.: *Office's Srtle*

Were Samples Received in Good Condition?  Yes  No

Samples on Ice?

Yes  No

Method of Shipment:

*ice*

Date / Time / Temp.:

*12/1/00 9:51 AM*

Date / Time / Temp.:

*12/1/00 10:20 AM*



**SEQUOIA ANALYTICAL**  
**CHAIN OF CUSTODY**

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Company Name: *BERKELEY BASE & ASSESS*

Mailing Address: *2986 Powers Cr*

Project: *OTEN ALLURE*

City: *CORAL GABLES, FLA*

State: *FL*

Zip Code: *33140*

Telephone: *305 484-4188*

Fax #: *305 484-4188*

P.O. #:

Report To: *Chris Stine*

E-mail Address: *chris.stine@keyes-environment.com*

Sampler: *Chris Stine*

Date / Time Results Required:

Turnaround Time:

10-15 Working Days

72 Hours

48 Hours

24 Hours

2-8 Hours

(Standard TAT)

7 Working Days

5 Working Days

Other

**MANDATORY:**

SDWA (Drinking Water)

CWA (Waste Water)

RCRA (Hazardous Waste)

Other

**ANALYSES REQUESTED** (Please provide method)

Level II (standard)

Level III

Level IV

Sequoia's Work Order # *S512232*

Comments/Temp.(if required)

Client Sample I.D.	Date / Time Sampled	Matrix Desc.	# of Cont.	Container Type	Sequoia's Sample #	TNT	ANALYST	NOTES	Comments/Temp.(if required)
1.0702-MW-14	12-7-05 0922W		3		S512232	-10	X	X	
2.07162-MW-15			2			-11	X	X	
307162-MW-16			1031	W		-12	X	X	
4.0702-MW-17	1101	w	7			-13	X	X	
5.0702-MW-17	0952W		3			-14	X	X	
6.									
7.									
8.									
9.									
10.									

Comments/Temp.(if required)

*1400*

*1400*

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Were Samples Received in Good Condition?  Yes  No

Samples on Ice?  Yes  No

Method of Shipment: \_\_\_\_\_